

REGULATORY IMPACT STATEMENT

(Uniform Code)

1. STATUTORY AUTHORITY

Article 18 of the Executive Law (§§ 370-383) establishes the State Fire Prevention and Building Code Council (hereinafter “Code Council”) and authorizes such council to formulate a code to be known as the Uniform Fire Prevention and Building Code (hereinafter “Uniform Code”).

Executive Law §377 provides that the Uniform Code shall “provide reasonably uniform standards and requirements for construction and construction materials for public and private buildings, including factory manufactured homes, consonant with accepted standards of engineering and fire prevention practices.”

Executive Law §372(3) defines “building” as “a combination of any materials, whether portable or fixed, having a roof, to form a structure affording shelter for persons, animals, or property.” Included within the legislative findings and purposes for the Uniform Code in Executive Law §371(2)(b)(1) is that it shall “provide a basic minimum level of protection to all people of the [S]tate from hazards of fire and inadequate building construction” and to “reconcile the myriad of existing and potentially conflicting regulations which apply to different types of buildings and occupancies.” Executive Law §377(1) also provides that the Code Council may, from time to time, amend particular provisions of the Uniform Code, as well as periodically review the entire Uniform Code to ensure that it effectuates the purposes of Article 18 of the Executive Law and the specific objectives and standards set forth in such article.

Executive Law §378 provides that the Uniform Code shall address the following subjects:

“1. Standards for the construction of all buildings or classes of buildings, or the installation of equipment therein, including standards for materials to be used in connection therewith, and standards for safety and sanitary conditions;”

“1-a. a. Standards for the construction of all new buildings and for the construction or renovation of existing buildings that undergo a substantial improvement, as defined by the council, located wholly or partially in an area designated on the applicable Federal Emergency Management (“FEMA”) flood insurance rate map, as amended from time to time, as a Special Flood Hazard Area or Moderate Risk Flood Hazard Area, for the purposes of safeguarding life and property therein and thereabout from the hazards of sea level rise, flooding, saltwater corrosion, coastal or riparian erosion, storms, and other degradation that may arise out of characteristics of the coastal environment.

b. The standards in paragraph a of this subdivision shall (i) be developed to address future physical climate risk due to sea level rise, and/or storm surges and/or flooding, based on available data from nationally recognized sources or data produced by state agencies based on nationally recognized procedures, analysis, and studies predicting the likelihood of extreme weather events, including hazard risk analysis data if applicable, and after consultation with the department of environmental conservation, and (ii) if appropriate, provide for regular inspection, and repair, as necessary, of the interior structural elements of buildings.”

“2. Standards for the condition, occupancy, maintenance, conservation, rehabilitation and renewal of certain existing buildings, structures and premises and for the safeguarding of life and property therein and thereabout from the hazards of fire, explosion or release of toxic gases arising from the storage, handling or use of combustible or hazardous substances, materials or devices;”

3. Standards for passenger elevators;
4. Standards for areas of public assembly;
5. Standards requiring the posting of certain notices in hotels, motels and lodging houses;
- 5-a. Standards for installation of carbon monoxide detectors in residential buildings;
- 5-b. Standards for installation of single station smoke detecting alarm devices;
- 5-c. Standards for inspections of solid fuel burning heating appliances, chimneys and flues;

- 5-d. Standards for installation of carbon monoxide detectors in commercial buildings;
6. Standards for the use of lead in water supply systems constructed or portions added on or after January first, nineteen hundred eighty-six;
7. “Standards for the construction of water supply systems which shall prohibit the use of asbestos cement pipe to convey potable water for any new or modified construction on or after January first, nineteen hundred ninety-two;”
8. Standards for hotels, motels and lodging houses requiring (in addition to any other requirement) portable smoke-detecting alarm devices for the deaf and hearing impaired of audible and visual design;
9. Standards requiring the posting of certain notices in certain buildings housing senior citizens;
10. Standards for assistive listening systems for new construction commenced after January first, nineteen hundred ninety-one requiring the installation of assistive listening systems at all places of public assembly;
11. Standards for buildings authorizing the installation of potable water heaters for all domestic uses, including space heating;
12. [as added by L. 1995, c. 132] Standards for fire safety for bed and breakfast dwellings;
12. [as added by L. 1995, c. 532] Standards for hospice residences;
13. Standards for the abandonment or removal of heating oil storage tanks and related piping in connection with the conversion of liquid fuel burning appliance to alternative fuel;
14. Standards for gates required to be provided in a swimming pool enclosure, standards for pool alarms for new or substantially modified swimming pools, and standards for hot tubs or spa safety covers;
15. Standards for temporary swimming pool enclosures used during the installation or construction of swimming pools;
16. Standards for the installation and maintenance of diaper changing stations in certain buildings; and

17. Standards requiring signs in certain buildings in which at least one diaper changing station is installed;
18. Standards for grease traps or interceptors located in places accessible to the public; and
19. Standards prohibiting the installation of fossil-fuel equipment and building systems in certain new buildings to support the goal of zero on-site greenhouse gas emissions and to help achieve the state’s clean energy and climate agenda including the greenhouse gas reduction requirements set forth in the New York State Climate Leadership and Community Protection Act.

The current version of the Uniform Code is based on international codes developed and published by the International Code Council (hereinafter “ICC”). This rule making would repeal the current version of the Uniform Code, which is based primarily upon the 2018 editions of eight (8) individual model codes developed and published by the ICC, and adopt new text based primarily upon the 2024 editions of model codes developed and published by the ICC, but which incorporates New York State-specific requirements. The individual codes that would be included in the Uniform Code as proposed by this rule are as follows: the 2024 Residential Code of New York State (2024 RCNYS), the 2024 Building Code of New York State (2024 BCNYS), the 2024 Plumbing Code of New York State (2024 PCNYS), the 2024 Mechanical Code of New York State (2024 MCNYS), the 2024 Fuel Gas Code of New York State (2024 FGCNYS), the 2024 Fire Code of New York State (2024 FCNYS), the 2024 Property Maintenance Code of New York State (2024 PMCNYS), and the 2024 Existing Building Code of New York State (2024 EBCNYS). The Uniform Code includes many national reference standards which are incorporated by reference within the proposed rule, including but not limited to the Uniform Code Provisions for Rail Stations incorporated by reference within 19 NYCRR Part 1228, and a large number of National Fire Protection Association (NFPA) references such as the National Electric Code (NFPA 70) and various standards for the installation of sprinkler systems (NFPA 13, 13R, and 13D). The provisions set forth in 19 NYCRR Subpart 1229-2 for fossil-fuel equipment and building systems, as required

by Executive Law §378(19), are included for consistency with the amendments to the State Energy Conservation Construction Code (“Energy Code”) set forth in the proposed rule making to amend 19 NYCRR Part 1240, as required by Energy Law §11-104(6)-(8).

Please note that the Energy Code will be the subject of a separate rule making. See the Regulatory Impact Statement for the Notice of Proposed Rule Making to amend 19 NYCRR Part 1240 for further detailed information.

2. LEGISLATIVE OBJECTIVES

Executive Law §371(2) states that it shall be the public policy of the State of New York to provide for the promulgation of a Uniform Code addressing building construction and fire prevention in order to provide a basic minimum level of protection to all people of the State from the hazards of fire and inadequate building construction. Executive Law §377(1) states that the Code Council is assigned the task of formulating the Uniform Code.

Executive Law §377 not only empowers the Code Council to amend provisions of the Uniform Code, but it also directs the Code Council to periodically review the entire Uniform Code to ensure that it effectuates the purposes, objectives, and standards set forth in Article 18 of the Executive Law. Further, Executive Law §371(2)(b)(5) provides that it is the policy of the State of New York to require new and existing buildings to keep pace with advances in technology concerning fire prevention and building construction.

Executive Law §371, as amended by Part RR of Chapter 56 of the Laws of 2023, provides that it is the policy of the State of New York to recognize that decarbonization of new and existing buildings is closely related to the State’s clean energy and climate agenda as described in the New York Climate Leadership and Community Protection Act set forth in Chapter 106 of the Laws of 2019, and that the Uniform Code shall enable the State’s clean energy objectives.

Executive Law §378, as amended by Chapter 831 of the Laws of 2022 and Chapter 19 of the Laws of 2023, indicates that the Uniform Code shall establish standards to safeguard life and property from future physical climate risk due to sea level rise, storm surges, and flooding.

Executive Law §378, as amended by Part RR of Chapter 56 of the Laws of 2023, provides that the Uniform Code shall, subject to stated exemptions, prohibit the installation of fossil-fuel equipment and building systems in certain new buildings.

Section 24 of Chapter 374 of the Laws of 2022 (“Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2022) states that a building code applicable to commercial or residential buildings or construction may not prohibit the use of a substance allowed pursuant to the United States Environmental Protection Agency’s significant new alternatives policy to implement 42 U.S.C. 7671k, provided that such substance and the refrigeration or air condition system or other equipment or products utilizing such substance are designed, installed, and used in accordance with nationally recognized published standards that protect building occupant safety and reduce fire risks.

Upon review of the current text of the Uniform Code, the Code Council has concluded that it would further the purposes, objectives, and standards of Article 18 of the Executive Law to propose this rule, which would repeal the current Uniform Code text and replace it with updated text based upon the 2024 RCNYS, 2024 BCNYS, 2024 PCNYS, 2024 FCNYS, 2024 MCNYS, 2024 FGCNYS, 2024 PMCNYS, and 2024 EBCNYS.

3. NEEDS AND BENEFITS GENERAL

The current version of the Uniform Code is based upon the 2018 editions of the ICC model codes with New York specific amendments to align the Uniform Code with New York State’s statutes and special conditions. This rule making will repeal the current version of the Uniform Code and replace the text with the following New York specific code books based primarily upon the 2024 editions of the ICC model codes: 2024

RCNYS, 2024 BCNYS, 2024 FCNYS, 2024 PCNYS, 2024 MCNYS, 2024 FGCNYS, 2024 PMCNYS, and 2024 EBCNYS.

This change is necessary for New York State to remain consistent with the rest of the nation in matters involving building construction and to provide a sufficient level of building safety to its residents. It is also necessary if New York State wishes to keep pace with evolving technology concerning fire prevention and building construction and to have a building and fire prevention code which is consistent with nationally accepted model codes. The 2024 model codes address new technology, such as powered micro-mobility devices (more commonly known as lithium battery powered bikes, scooters, etc.), lithium batteries, and energy storage systems. The model codes also add new requirements for the use of mass timber, adult changing stations, shipping container construction, occupiable roofs, and inflatable amusement devices; topics discussed further below.

Adopting updated ICC model codes avoids a broad range of devastating losses¹ and saves money. The United States experiences a multitude of disasters each year.² The cost of cleaning up and rebuilding destroyed homes, businesses, and equipment and infrastructure is immense and growing.³ A 2024 Climate Resiliency study found that each \$1 of investment in resilience and disaster preparedness reduced a community's economic costs after an event by \$7.⁴ Additionally, every \$1 invested in resiliency and disaster preparedness saves \$13 in economic impact, damage, and cleanup costs after the event.⁵ The resiliency and preparedness investments

¹ Natural disasters are responsible for a broad range of devastating losses: loss of life and injuries; damage to homes, businesses, infrastructure, and the environment; mental trauma; displacement; disruption of normal life; loss of income; and damage to local and regional economies. *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. ES-1.

² *The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience*, United States Chamber of Commerce 2024 p. 4.

³ *The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience*, United States Chamber of Commerce 2024 p. 4.

⁴ *The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience*, United States Chamber of Commerce 2024 p. 4, 8.

⁵ *The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience*, United States Chamber of Commerce 2024 p. 4, 7.

analyzed in the 2024 study included adopting building codes to prevent or reduce damage from hazards.⁶ A 2019 study by National Institute of Building Sciences (NIBS) found that adopting the latest building codes saves \$11 per \$1 invested.⁷ The NIBS study also demonstrated how strengthened building codes for risk mitigation results in financial and economic benefits, which are expected to accrue over the life of buildings designed and constructed to updated ICC model codes.⁸ Low-income housing built to updated ICC model codes reduces impacts to those least able to absorb them.⁹ Buildings that are designed and constructed to the updated ICC model codes withstand the effects of natural hazard events, including flooding, high winds, and earthquakes, better than buildings that are not.¹⁰ A logical way to help address affordable housing is to make the inventory hazard resilient, thereby extending the housing investment value for homeowners with limited resources to help absorb the acute shock of a disaster event.¹¹

In addition, the Uniform Code is being updated based on discussions and recommendations from various work groups and State agencies, such as adding residential sprinklers for townhouses that are served by a municipal water supply system based on discussions by the Workgroup established by the Code Council at the June 2019 meeting, improvements to flood resistant construction language pursuant to recommendations by the New York State Department of Environmental Conservation (DEC), integrating other recommendations from the Code Council Workgroup including: emergency responder radio coverage in existing buildings, updating to the current NFPA sprinkler standards, the use of 10-year battery backups in smoke detectors, interconnection of new smoke alarms using wireless technology, updated versions of UL 217 (smoke alarms) and UL 268 (smoke

⁶ *The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience*, United States Chamber of Commerce 2024 p. 20.

⁷ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. ES-7. 1-1, 8-1; *Guide to Expanding Mitigation*, U.S. Federal Emergency Management Agency p. 3, 7.

⁸ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 1-1.

⁹ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. ES-7.

¹⁰ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 1-1.

¹¹ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 7-14.

detectors), automatic sprinkler system provisions (55 feet vs 30 feet building height), and the Performance Code (previously incorporated through NYCRR Part 1205). Additionally, proposed recommendations from the Inter-Agency Fire Safety Working Group relating to Energy Storage Systems created by the Governor in July 2023 have been integrated, as discussed further below.

The significant changes to the existing Uniform Code are separately discussed below outlining the needs and benefits and any associated costs.

2024 RCNYS

Residential Sprinklers

2024 RCNYS: Section R309

Needs and Benefits:

This code amendment expands the requirements for the installation of automatic fire sprinkler systems in buildings regulated by the Residential Code.¹² These requirements consist of expanding the requirement for the installation of automatic fire sprinkler systems to include all new townhouse units that are served by a municipal water supply system. This proposal also adds language to Appendix BO (formerly Appendix J) requiring automatic sprinkler systems to be installed in new townhouse units added to existing townhouses, as well as townhouse units in which an addition increases the floor area by more than 50%. Currently, in the 2020 Residential Code of New York State (2020 RCNYS), only live/work units, owner-occupied lodging houses, and new one- and two- family dwellings and townhouse units having a height of three stories above grade plane or

¹² The following buildings not more than three stories above grade plane in height are regulated under the Residential Code: one- and two-family dwellings, townhouses, bed and breakfast dwellings, live/work units, and owner-occupied lodging houses having five or fewer guestrooms.

more and some instances in existing buildings undergoing alterations or additions, require an automatic fire sprinkler system.

Manufactured homes are not required to have an automatic sprinkler system installed under the 2020 RCNYS, and this provision is unchanged by the proposed amendment. The United States Department of Housing and Development (HUD) promulgates standards for the design and construction of manufactured homes. In 2024, HUD updated the “*Manufactured Home Construction and Safety Standards*” to allow up to four dwelling units to be included in a single manufactured home. Depending on configuration, separation between units, exit layouts, and other factors, single manufactured homes with 3 or 4 dwelling units may fall under the definition of “townhouse” in the Uniform Code. Consequently, the requirements for automatic sprinkler systems in townhouses has been updated to add an exception for manufactured homes.¹³ As of the 2024 standard, HUD does not require automatic sprinkler systems in manufactured homes, and as such, this exception was added to prevent conflict between the Uniform Code and HUD standards.

In 2006, the International Residential Code (IRC) first included fire sprinkler systems as an optional appendix before moving them to the body of the code in 2009.¹⁴ Additionally, the 2009 edition of the IRC included the requirement for fire sprinklers in new townhouses. This requirement has been retained in the 2012, 2015, 2018, 2021, and 2024 editions of the IRC. While only two states, California and Maryland, include requirements for sprinklers in one and two-family dwellings, currently nine states include a requirement for townhouse sprinklers.¹⁵ This code amendment would align the New York State Residential Code more with the IRC and other states.

¹³ Amendment [89 FR 75737](#) to 24 CFR Part 3280, published September 16, 2024, and effective March 17, 2025.

¹⁴ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 3.

¹⁵ The nine states include California, Hawaii, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, Oklahoma, and Pennsylvania. *Fire Sprinkler Mandates: State by State Data*, National Association of Home Builders 2019 at p. 4, 6, 7, 8, 9.

At the June 2019 Code Council Meeting, a Workgroup was created to evaluate specific existing and proposed new code provisions related to the Uniform Code. One of the thirteen topics assigned to the Workgroup was a new requirement for townhouses that are served by a municipal/public water supply system to have automatic sprinkler system installed, regardless of the number of stories. The Workgroup was tasked with reviewing the technical feasibility and barriers to adding this new requirement. The Workgroup issued a summary of their review in November 2021.¹⁶

Townhouses are a unique structure regulated by the 2020 RCNYS in that, unlike many of the other buildings regulated under the 2020 RCNYS, they are one building containing three or more single family dwelling units called townhouse units. This structure gives the owner/occupant of a townhouse unit little to no control over the adjacent townhouse units' use and maintenance. To mitigate this concern from a fire safety perspective, the 2020 RCNYS requires additional protections, including proper fire separation and fire-resistant rated construction between the dwelling units; a separate means of egress for each dwelling unit; and open space on at least two sides. Fire-resistant construction of townhouses is covered under Section R302.2 of the 2020 RCNYS, which requires the walls separating the individual dwelling units of townhouses to be either two 1-hour rated assemblies or a common wall. Where the townhouse is provided with a fire sprinkler system, the common wall must be not less than a single 1-hour rated assembly; otherwise, without a sprinkler system, the common wall must be not less than a 2-hour rated assembly.

Installing a sprinkler system in townhouse units may result in several cost savings. There is a reduced construction cost when installing an automatic sprinkler system by opting for the 1-hour common wall under Section R302.2.2 (1) versus the 2-hour common wall or double-wall option. Other potential reductions in costs include increased fire hydrant spacing under Section 507.5 of the 2020 Fire Code of New York State and

¹⁶ The summary can be found here <https://dos.ny.gov/system/files/documents/2022/02/code-council-2020-21-workgroup-executive-summary-with-attachments.pdf>

different fire-resistance rated construction requirements for exterior walls per Section R302.1 of the 2020 RCNYS.

The type of automatic sprinkler systems that would be required by the proposed change typically require a flow not much greater than the normal domestic demand already required by the Uniform Code (a range of 20 to 26 gallons per minute) and may only result in a slightly larger, but not uncommonly large service line, such as a one-inch service versus ¾-inch service. Additionally, the type of system is equated to the typical plumbing system already being installed within townhouses and would, therefore, not necessarily require another contractor but could be performed by the plumbing contractor already included with the construction.¹⁷

The proposed residential code provides several new construction reliefs that will reduce the cost of a townhouse unit with a sprinkler system. Section R302.2.2 allows for sprinkler pipes to be installed with the common wall cavity. This allows sprinklers pipes to be constructed within the conditioned space avoiding locating system components in an unconditioned attic, and therefore eliminating the need for a dry system or a system with anti-freeze. A new Exception 6 in Section R302.2.6 introduces another construction relief option. This exception allows a townhouse unit to be built without needing to be structurally independent from adjacent townhouse units, provided that a Section P2904 or NFPA 13D automatic sprinkler system is installed throughout the unit.

Sprinklers protect occupants and reduce the impact of fires.¹⁸ Sprinklers reduce the risk of civilian and firefighter fatalities and injuries.¹⁹ As mentioned, townhouses are a unique type of building in that they have

¹⁷ There is no statewide license requirement for the installation of automatic sprinklers; NFPA 13D Section 4.5 states “The layout, calculation, and installation of sprinkler systems installed in accordance with this standard shall only be performed by people knowledgeable and trained in such systems.” and Section 2904 requires that certain modifications to the system be approved by a fire protection specialist. The authority having jurisdiction will need to verify that the technician meets the requirements of the Uniform Code and the AHJ may do this through a local license program as some AHJs already require.

¹⁸ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1, 12.

¹⁹ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. iii, ES-1; *US Experience with*

three or more attached dwelling units in which fire can more easily spread from one unit to the next, resulting in more damage and chances of serious death or injury. An automatic sprinkler system could reduce the risk of fires easily spreading from one townhouse to another. Unlike detached homes, where an owner has direct control over personal safety, townhouses are multifamily structures that include many unrelated individuals and families living in attached units. There is no “owner’s choice” argument in the case of townhouses because the fire safety of at least two other families relies on the behavior of someone else, i.e. a neighbor’s accident, carelessness, or perhaps even unlawful activities, will impact an individual’s safety, family’s safety, pets’ safety, and property. There have been many incidents where a fire in one townhouse unit had catastrophic consequences on neighbors who had nothing to do with the cause of the fire. Residential fire sprinklers prevent such tragedies by keeping fires contained to the unit of origin, either controlling the fire or extinguishing it altogether.

The National Fire Incident Reporting System codes townhouses as multifamily occupancies, separate from one- and two-family dwellings, recognizing that the risk associated with townhouse fires is that of a multifamily occupancy.²⁰

Research conducted by the National Institute of Standards and Technology and Underwriters Laboratories on residential fire behavior and the value of residential fire sprinklers to firefighter and occupant safety provides support for this code amendment. Research shows that the rate of fire growth in modern residential structures has increased, partly attributed to an increased heat release rate and an increased heat of combustion associated with modern synthetic materials used in household goods and furnishings. Faster fire

Sprinklers, National Fire Protection Association October 2021 at p. 1; *Benefits of Residential Fire Sprinkler: Prince George’s County 15-Year History*, Home Fire Sprinkler Coalition August 2009 at 4; *Stakeholder Perceptions of Home Fire Sprinklers*, Fire Protection Research Foundation September 2016 at p. 1.

²⁰ *Determining Property Use at the Incident Location*, U.S. Fire Administration, <https://www.usfa.fema.gov/nfirs/coding-help/property-use/>

growth in a multifamily structure means that occupants of adjacent units will be endangered more quickly than was the case with legacy furnishings.

Townhouses also place significantly increased demand on fire service resources compared to detached dwellings. Townhouses increase the complexity of rescue operations, and firefighting is hampered because fire spread into adjacent units cannot be easily followed by firefighters from unit to unit. Openings in townhouse unit common walls are prohibited, which prevents firefighters from being able to cross between units without leaving the building.

From 2015 to 2019, in houses equipped with sprinkler systems, the civilian death rate per reported home fire was 88 percent lower, and the civilian injury rate per reported home fire was 28 percent lower when compared to fires in homes with no sprinkler systems.²¹ The term home included multifamily homes like townhouses.²² In studies of Scottsdale, Arizona, and Prince George’s County, Maryland, it was shown that residences with sprinkler systems suffered fewer deaths, injuries, and property damages than those without.²³

Sprinklers begin to control a fire when they activate, making the situation less dangerous for responding firefighters in addition to building occupants.²⁴ The rate of firefighter injuries was 78 percent lower in home fires where sprinklers were present than in homes with no sprinkler system.²⁵ The term home included multifamily homes like townhouses.²⁶

²¹ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

²² *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1. n.i.

²³ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. 1.

²⁴ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 4.

²⁵ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

²⁶ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1. n.i.

Sprinklers limit the spread of fires and are effective in extinguishing fires.²⁷ In buildings equipped with automatic sprinkler systems, fire data shows fire spread is usually confined to the object or room of origin.²⁸ In the United States, from 2015 to 2019, in structural fires large enough to activate sprinklers, sprinklers operated in 92 percent of such fires and when operational, were effective at controlling the fire in 96 percent of these incidents.²⁹ Overall, sprinkler systems operated and were effective in 88 percent of fires considered large enough to activate them.³⁰ In reported home fires in which sprinklers were present, the fire was confined to the room of origin 97 percent of the time compared to 74 percent in homes with no sprinkler system.³¹ The term home includes multifamily homes like townhouses.³²

While sprinkler systems designed to NFPA 13D or section P2904 of the RCNYS are only intended to provide for life safety, such sprinkler systems often protect property and reduce property loss.³³ Analysis of national fire data found that residents of single-family dwellings equipped with sprinkler systems experienced reductions in the risk of uninsured direct property losses and uninsured indirect costs.³⁴ Over the 2002 to 2005 nationwide study period, houses equipped with smoke alarms and a fire sprinkler system experienced 32 percent less direct property losses and indirect costs resulting from fire than houses equipped only with smoke alarms.³⁵ Indirect costs in one- and two-family dwellings include temporary shelter, missed work, extra food costs, legal

²⁷ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 12.

²⁸ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

²⁹ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

³⁰ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

³¹ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

³² *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1. n.i.

³³ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1, 4. *Benefits of Residential Fire Sprinkler: Prince George's County 15-Year History*, Home Fire Sprinkler Coalition August 2009 at p 4, 8; *Stakeholder Perceptions of Home Fire Sprinklers*, Fire Protection Research Foundation September 2016 at p. 1; *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 4.

³⁴ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. iii, ES-1

³⁵ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. ES-1, 39.

expenses, transportation, emotional counseling, and child care.³⁶ From 2015 to 2019, the average property loss per home fire was 62 percent lower in reported fires where sprinklers were present compared to fires in homes with no sprinkler system.³⁷ The term home includes multifamily homes like townhouses.³⁸ The average property loss in the sprinklered-home fire incidents was \$14,000, compared to an average loss of \$179,896 in un-sprinklered home fire incidents.³⁹

Water damage is a significant cause of property damage in home fires. The average water output of a residential fire sprinkler is significantly less than that of a typical fire hose, which means that the activation of a fire sprinkler will create far less water damage than a fire hose.⁴⁰ Since water damage is a major source of property damage in many fire incidents, having a lower water output will help reduce water damage and has the potential to significantly lower property losses.

Critics of home fire sprinklers claim that requiring sprinklers may impact home affordability, the cost of new homes, consumer choice, and owner rights.⁴¹ However, in a 2018 California study and a 2009 Maryland study, no evidence was found of sprinklers impacting housing supply or cost.⁴² The 2018 California study found that after the statewide requirement for home fire sprinkler systems was implemented in 2011, single-family building permit numbers increased across the state.⁴³ The study also showed that, from 1990 through 2016, when compared to state and county data, early adopter jurisdictions of the sprinkler ordinance experienced a

³⁶ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. 24.

³⁷ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1.

³⁸ *US Experience with Sprinklers*, National Fire Protection Association October 2021 at p. 1. n.i.

³⁹ *Communities with Home Fire Sprinklers: The Experience in Bucks County, Pennsylvania*, Fire Planning Associates, Inc. November 2011 at p. 4.

⁴⁰ *Benefits of Residential Fire Sprinkler: Prince George's County 15-Year History*, Home Fire Sprinkler Coalition August 2009 at p. 8; *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 21.

⁴¹ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. ii; *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 24.

⁴² *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 4.

⁴³ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 8, 10.

similar increase and decrease in construction costs, indicating that the sprinkler requirement had very little to no impact.⁴⁴

Cost:

Historically, the first and largest issue associated with the requirement for residential sprinkler systems is cost.⁴⁵ Fire sprinkler systems have become much more affordable over the past several decades.⁴⁶ The biggest costs associated with residential sprinklers are the initial purchase and installation of the system.⁴⁷

A ten-year study of Scottsdale, Arizona, where a residential automatic sprinkler requirement was adopted in 1985 and fully implemented on January 1, 1986, found that the installation costs reduced dramatically from \$1.14 square foot to \$0.59 square foot after adoption of the sprinkler requirement.⁴⁸ The primary reasons behind the cost reduction were identified as: the mandatory requirement for the community, established standards identified for all builders, increased competition for the available business, better availability of quality materials, and an increase in the efficiency of those installing the systems, resulting in better and quicker installations.⁴⁹ A 2013 study by NFPA determined that the national average to install a home fire sprinkler system was \$1.35 per square foot.⁵⁰ Looking solely at the two states (California and Maryland) that have statewide requirements for all new construction, the average cost drops to \$1.16 per square foot.⁵¹ This 2013 study illustrates that widespread adoption lowers the cost of the sprinklers.⁵²

⁴⁴ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 4.

⁴⁵ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 19.

⁴⁶ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. 26.

⁴⁷ *Benefit Cost Analysis of Residential Fire Sprinkler Systems*, U.S. Department of Commerce National Institute of Standards and Technology, Office of Applied Economics Building and Fire Research laboratory Sept. 2007 at p. iii, ES-1.

⁴⁸ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 4, 9, 26

⁴⁹ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 19, 26-27.

⁵⁰ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 3.

⁵¹ *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 3.

⁵² *Impact of Home Fire Sprinkler System Requirements in California*, Fire Protection Research Foundation 2018 at p. 3.

The cost of sprinkler systems in townhouses can vary widely depending on a number of variables including geographic region, scale and size of installation, type of system, and features of the design and system that were included in the installation.

The Department of State Division of Building Standards and Codes received cost estimates that have varied widely from sources such as home builders, contractors, installers, the fire industry, and other jurisdictions who have implemented similar requirements. These costs have been between an average of \$4,500 and \$40,000 depending on water source, geographic location, system type, and other factors. This estimate is based on an average size single-family home of 2,500 square feet. As noted above however, based on other jurisdictions who have implemented this requirement, costs are anticipated to come down and stabilize over time. The dollar amount is estimated, as the information given is supplemented by comments received on the Notice of Rule in Development from multiple industry experts. The requirement for residential sprinkler systems for townhouse units are restricted to such townhouse units being connected to municipal/public water. This will remove costs associated with a private water supply, such as pumps, wells and need for water storage. As detailed cost estimates were not provided, reductions to the dollar amount have not been made to account for the unnecessary items.

The residential sprinkler system is very reliable and minimal maintenance is required once the system has been placed in service.⁵³ The individual homeowner can easily check the system for readiness.⁵⁴

Alternatives:

One alternative is not to adopt the ICC language and instead keep the 2020 RCNYS sprinkler requirements as noted above. However, this alternative does not address the risks and hazards associated with

⁵³ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 28.

⁵⁴ *Saving Lives, Saving Money Automatic Sprinklers A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona*, Home Fire Sprinkler Coalition 1997 at p. 28.

residential fires in townhouses. In the United States, homes including townhouses are where the vast majority of structure fire deaths occur.⁵⁵ In 2021 in the United States, an estimated 361,000 total residential structure fires caused 2,880 civilian deaths; 11,500 civilian injuries and \$8.9 billion in direct property damage.⁵⁶ For this reason, this alternative was rejected.

Another alternative is to limit the requirement to install automatic sprinkler systems to specific locations within the dwellings regulated by the Residential Code. However, fires can start in any area of a dwelling, and new technologies (such as those utilizing lithium-ion batteries) can be located in many parts of the dwelling, presenting possible fire hazards throughout the dwelling. Installing sprinklers only in certain areas of a dwelling would not create the level of fire protection described in the needs and benefits section above. Automatic sprinkler systems designed to NFPA 13D or section P2904 of the RCNYS focus solely on life safety, not property protection, focusing on egress pathways and occupant evacuation. Any further reduction in sprinkler system coverage is likely to impact the life safety protection of the system. Additionally, much of the cost of installing a sprinkler system is constant regardless of system size, so further limiting requirements to only certain areas may not significantly decrease costs and would not achieve the ultimate goal of life safety.

A third alternative is to require all new one- and two-family dwellings to install automatic sprinkler systems as proposed in the Notice of Rule in Development. However, the Division of Building Standards and Codes received comments and input indicating that the fire hazards in townhouses are greater in multi-family townhouse structures than one- and two-family dwellings and such fire hazards cannot be fully mitigated by townhouse construction or residents' behavior. The Division also received numerous public comments concerned with housing affordability due to the cost associated with requiring automatic sprinkler systems for

⁵⁵ *Communities with Home Fire Sprinklers: The Experience in Bucks County, Pennsylvania*, Fire Planning Associates, Inc. November 2011 at p. 3.

⁵⁶ *Fire Loss in the United States During 2021*, National Fire Protection Association (NFPA) Sept. 2022 at p. 6.

all new one- and two-family dwellings. Since automatic sprinkler systems are not currently required in all residential homes in New York State, there is lower demand for contractors skilled in the installation of such systems, resulting in increased costs associated with such systems. Requiring sprinklers systems in townhouses will increase demand for such contractors, which will likely result in a decrease in cost resulting from an increase of contractors providing such services. Builders and developers are likely to become more familiar with the installation process for residential sprinkler systems, which may also reduce costs by streamlining the incorporation of sprinkler system installation into the overall construction process. Accordingly, the draft language in the Notice of Rule in Development was modified to require sprinkler systems in townhouses served with municipal water to accommodate both the fire safety concerns associated with this specific building type as well as overall housing affordability.

The last alternative is to require automatic sprinkler systems in townhouses not supplied by municipal water supply system. However, the costs associated may be much higher for townhouses not supplied by municipal water system because it may require the additional requirement of an onsite water storage tank and a pump. Due to the uncertainty of the on-site well parameters including: storage volume, depth, well refill rate, and water quality; that may drastically affect the cost of installing a sprinkler system for a townhouse, this alternative was rejected.

2024 EBCNYS

Temporary use of buildings in emergencies

2024 EBCNYS: Appendix E (New)

Needs and Benefits:

This code amendment includes the International Existing Building Codes' (IEBC) new appendix that details provisions for the temporary safe and proper use of a building for emergency purposes when a State or

Federal emergency declaration has been issued. The main goal of this appendix is to provide guidance for designers, engineers, architects, and fire and building code officials, facilitating the temporary use of existing buildings while adhering to minimum code requirements. During an emergency, the response must be immediate, so there is insufficient time for full plan review and inspection procedures that would be ordinarily required. Existing buildings may be used for occupancies other than those for which they were intended, and it may be necessary to erect temporary structures to address immediate needs. Nationwide examples include housing needs due to mass evacuations during west coast fires and the COVID-19 pandemic which overloaded many community health care systems, causing an urgent need for additional temporary medical facilities. This appendix is a guidance document for emergencies that exceed pre-planned emergency responses.

The proposed appendix includes a definition of emergency and temporary use in Section 102. Buildings and structures can be used in emergency situations temporarily for a period of up to 180 days without requiring a formal change of occupancy. Uses can include, but are not necessarily limited to, the functional designations of the occupancy group descriptions of Building Code Section 302.1: Assembly (A), Business (B), Educational (E), Factory & Industrial (F), High Hazard (H), Institutional (I), Mercantile (M), Residential (R), Storage (S), Utility and Miscellaneous (U). The appendix specifies requirements for:

1. submitting scoping documents and permit applications to code officials for review;
2. maintaining the building's structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of the code as necessary to provide a reasonable level of safety, health, and general welfare;
3. compliance with overall general standards for the building relative to its emergency use such as maintaining building accessibility and connecting temporarily to utilities;
4. increased occupant loads beyond maximum allowable occupant load(s);
5. tiny or manufactured homes used as emergency housing; and temporary health occupancies.

Cost:

This code change amendment is not expected to cause a change in the cost of construction. This appendix is only intended to provide a resource in emergency situations. Currently, no formal code requirements provide guidance on how to address emergency situations. This appendix provides a framework to make enforcement more consistent and aligned with the requirements of the ICC codes.

A change of use or occupancy typically requires compliance with Chapter 10 of the EBCNYS, resulting in additional costs due to required alterations, such as adding sprinkler systems, increasing fire protection ratings, modifying means of egress, and improving building accessibility. Appendix E helps local governments, emergency management officials, and property owners promptly identify buildings for emergency use that can be evaluated by the code official for minimum code compliance with minimal cost implications to bring a facility online for its intended temporary use. For instance, if a vacant B-occupancy tenant space without a sprinkler system is being used temporarily as a school during an emergency, it may not require the new sprinkler system mandated by Chapter 10. This is because appendix E allows the code official to assess existing fire protection systems according to the NFPA 550 standard or to allow a fire watch instead of installing a sprinkler system.

Alternatives:

An alternative is to not adopt Appendix E for the temporary use of buildings in emergencies. However, this alternative would leave local governments without viable options to address certain types of emergency situations and could result in property owners having to individually seek variances on a property-by-property basis in order to function as another occupancy temporarily during an emergency. This will lead to a lack of uniformity and varying degrees of safety across the State. New York State experienced this very issue during the COVID-19 pandemic, where the need for temporary uses was immediate and there was insufficient time to obtain variances. For these reasons, this alternative was rejected.

Another alternative is to limit the approved locations of those buildings temporarily used for emergencies. However, since there are approximately 1,600 local governments within New York State that cover a wide variety of geographic and environmental characteristics, creating location limitations which apply to all areas is very challenging. Such restrictions, if desired, are most appropriately enacted at a local level, where relevant local characteristics can be fully considered and included in the development process. For this reason, this alternative was rejected.

2024 FCNYS

Powered micromobility devices

2024 FCNYS: Sections 202, 322

Needs and Benefits:

This code amendment added a new definition for powered micromobility devices and established charging and storage location requirements for powered micromobility devices. This code amendment also addresses hazards associated with charging through provisions for listing, separation requirements, and use of detection systems.

The New York State Division of Homeland Security and Emergency Services (DHSES) convened a multi-agency working group to examine the issue of lithium-ion battery fires, particularly as it relates to micromobility devices, and to develop recommendations to mitigate the risk of lithium-ion battery fires.⁵⁷ The New York State Lithium-ion Battery Working Group recommended to update the Uniform Code to specifically address the use of powered micromobility devices based on the 2024 International Fire Code (IFC) provisions.

⁵⁷ The New York State Lithium-ion Battery Working Group was comprised of DHSES, NYSERDA, DMV, DOS, DOT, DPS, DEC, ESD, and NYPA.

Powered micromobility devices include any small, low-speed, electric-powered transportation devices, including electric-assist bicycles (e-bikes), electric scooters (e-scooters), and other small, lightweight, wheeled electric-powered conveyances.⁵⁸ Electric micromobility devices are usually powered by lithium-ion or lithium metal type batteries and are typically charged using common residential 120V AC outlets and charging time can range from 2.5 to 9 hrs., depending on battery type and charger.⁵⁹ There has been a significant increase in the use of micromobility devices in the recent years. The Light Electric Vehicle Association, an industry group representing light electric vehicle retailers, dealers, distributors, manufacturers, and suppliers, estimates that about 880,000 e-bikes were imported to the U.S. in 2021, double the amount imported in 2020. The global lithium battery market size was valued at approximately \$60 billion in 2022 and projected to reach over \$300 billion by 2032.⁶⁰

Improper charging of these devices can lead to a thermal runaway incident, which can result in high temperatures, the release of potentially hazardous gases, fire, and explosions. Thermal runaway can drastically increase the hazard of a fire event, and there have been significant fires due to these devices. The U.S. Consumer Product Safety Commission (CPSC) stated that there have been more than 200 incidents from 2021 through the first quarter of 2023 in which micromobility devices overheated or caught fire – leading to the deaths of 19 people.⁶¹ From January 1, 2021 through November 28, 2022, CPSC received reports of at least 208

⁵⁸ *Micromobility: A Travel Mode Innovation*. U.S. Dept of Transportation Federal Highway Administration. <https://highways.dot.gov/public-roads/spring-2021/02#:~:text=Building%20upon%20the%20Society%20of%20Automotive%20Engineers%20International%27s,scooters%20%28e-scooters%29%2C%20and%20other%20small%2C%20lightweight%2C%20wheeled%20conveyances.>

⁵⁹ *Electric Mobility Basics*. U.S. Dept of Transportation. <https://www.transportation.gov/urban-e-mobility-toolkit/e-mobility-basics/micromobility>

⁶⁰ *Lithium-Ion Battery Market is Slated to be Worth USD \$307.8 Billion by 2032*. GlobeNewswire (February 28, 2023) <https://www.globenewswire.com/en/news-release/2023/02/28/2617605/0/en/Lithium-Ion-Battery-Market-is-Slated-to-be-Worth-USD-307-8-Billion-by-2032-Market-Us.html#:~:text=The%20lithium%20ion%20battery%20market,18.3%25%20from%202023%20to%202032> (Last viewed Oct. 28, 2024)

⁶¹ *What's driving the battery fires with e-bikes and scooters?* NPR (March 11, 2023) <https://www.npr.org/2023/03/11/1162732820/e-bike-scooter-lithium-ion-battery-fires> (Last viewed September 23, 2024)

micromobility fire or overheating incidents from 39 states, resulting in at least 19 fatalities, including five associated with e-scooters, 11 with hoverboards, and three with e-bikes.⁶² In NYC specifically, the FDNY has reported at least 76 fires, 60 injuries, and 7 deaths associated with lithium-ion batteries in 2023 alone.⁶³ The proposed amendment sets reasonable safety requirements for the indoor charging of these devices. The proposed amendment includes the requirement for the device to be listed and labeled and for associated charging equipment to be compatible with the device and its battery. The proposed amendment includes a prohibition on utilizing residential occupancy for operating a rental, sales, and service business for these devices. Fire departments have reported instances of such residential usage.

Cost:

The proposed amendment may increase the cost of construction due to the requirements to install additional electrical receptacles, depending on the number of charged devices, and a fire alarm system, if not already required. Additional square footage for charging areas may be necessary due to separation requirements and limitations on stacking during charging, which would cause increased construction costs depending on the type of building.

The proposed amendment requires each charging device to be connected directly to an individual receptacle, which may increase the number of receptacles required to be installed depending on the number of devices to be charged. Based on RSMeans cost data, installing additional receptacles during new construction is

⁶² CPSC Calls on Manufacturers to Comply with Safety Standards for Battery-Powered Products to Reduce the Risk of Injury and Death. U.S. Consumer Product Safety Commission (Dec. 20, 2022) <https://www.cpsc.gov/Newsroom/News-Releases/2023/CPSC-Calls-on-Manufacturers-to-Comply-with-Safety-Standards-for-Battery-Powered-Products-to-Reduce-the-Risk-of-Injury-and-Death#:~:text=From%20January%201%2C%202021%20through%20November%2028%2C%202022%2C.e-scooters%2C%2011%20with%20hoverboards%20and%20three%20with%20e-bikes>. (Last viewed Sep. 23, 2024)

⁶³ 2 critically injured in NYC fire have died as FDNY confirms blaze sparked by lithium battery. New York Post (May 9, 2023) <https://nypost.com/2023/05/09/2-critically-injured-in-nyc-fire-die-fdny-confirms-lithium-battery-cause/>. (Last viewed Oct. 28, 2024)

estimated to cost between \$70 to \$200 per receptacle.⁶⁴ Retrofitting an existing structure to install additional receptacles is estimated to cost \$100 to \$400 per receptacle.

The proposed amendment requires installation of a fire alarm system which, if not already required based on the occupancy type, will result in a cost increase. Installation of a fire alarm system is estimated to cost between \$2 to \$12 per square foot depending on type and complexity of the system.

Alternatives:

An alternative is to not adopt any provisions addressing powered micromobility devices. This alternative does not address the fire safety issues of powered micromobility devices and does not adequately protect life and property. Fire incidents involving these devices have already occurred in New York State, and the number of such incidents may continue to grow as the devices gain further popularity. For these reasons, this alternative was rejected. Another alternative considered was to regulate lawncare equipment and other battery-powered devices, however this alternative was rejected to remain consistent with the ICC model code provisions which specifically target micromobility devices due to the safety concerns associated with their use and storage and in light of recent incidents throughout the State.

Inflatable amusement devices

2024 FCNYS: Sections 202, 3101.1, 3106

Needs and Benefits:

This code amendment adds the new 2024 IFC definition for “inflatable amusement device” as a device made of flexible fabric or other combustible materials that is inflated by one or more air blowers providing internal air pressure to maintain its shape which are typically designed for recreational activities that allow

⁶⁴ www.rsmeansonline.com (2024)

occupants to bounce, climb, slide, negotiate an obstacle course, or participate in interactive play. This code amendment also includes provisions included in the 2024 IFC relating to construction with flame-resistant materials, anchoring, support, and installation of inflatable amusement devices. Amusement devices covered by this code amendment are used primarily in amusement, entertainment or recreational applications. Such applications include, but are not limited to, amusement parks, theme parks, water parks, family entertainment centers, rental companies, fitness centers, gyms, gymnastics facilities, jump centers, sports facilities, skate parks, camps, schools, shopping centers, temporary special events, carnivals, fairs, festivals and municipal parks.⁶⁵ However, there is an exception to these requirements for inflatable amusement devices operated on private property where use is not open to the public.

There have been numerous reported incidents of accidents and injuries involving inflatable amusement devices, otherwise known as “bounce houses,” caused by weather events such as wind gusts and improper setup, anchorage, or use, where the “bounce house” is uplifted, carried away, and/or overturned with children or adults inside. Between the years 2000 to 2001, there were at least 479 documented injuries and at least 28 deaths from wind-related bounce house incidents worldwide.⁶⁶ With the update and inclusion of ASTM F2374 (Standard Practice for Design, Manufacture, Operation, And Maintenance of Inflatable Amusement Devices) in the IFC, a new Section 3106 was added by ICC which includes basic fire and electrical safety requirements for the design, anchorage, operation, placement and maintenance of inflatable amusement devices.

Cost:

This code amendment may lead to increased manufacturing costs for inflatable amusement device manufacturers to comply with regulations. These products are currently minimally regulated in New York State.

⁶⁵ ASTM. (2024, June 25). *Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices*. [www.astm.org. https://www.astm.org/f2374-22.html](https://www.astm.org/f2374-22.html)

⁶⁶ *Wind-Related Bounce House Incidents in Meteorological, Regulatory, and Outreach Contexts*. Bull. Amer. Meteor. Soc., 103, E2323–E2340, <https://doi.org/10.1175/BAMS-D-21-0160.1>.

For example, the New York State Department of Labor’s Industry Inspection Bureau issues permits for amusement devices and inspects inflatable amusement devices at carnivals, fairs, and amusement parks for compliance with applicable safety regulations.⁶⁷ Manufacturers will now be required to ensure the materials used for the devices undergo some fire testing.

After researching various US-based inflatable amusement device manufacturers and their product owners’ manuals, product data sheets, and installation instructions, it was found that ASTM F2374 is a recognized industry standard amongst commercial inflatable device manufacturers. Compliance with this standard is noted throughout the documentation found. Therefore, it is anticipated that manufacturers who already fabricate devices complying with the ASTM standard may not incur additional costs upon adoption of this code amendment.

The proposed code amendment will impact suppliers and manufacturers who do not currently provide ASTM F2374-compliant products and those that do not properly install them. The impacts may include higher costs, such as purchasing NFPA 701-compliant materials, upgrading equipment to meet the electrical requirements of FCNYS Section 3106, and paying for NFPA 701 testing of existing non-compliant materials used for fabrication.

Consumers looking to rent inflatable amusement devices may also experience increased costs, as these expenses may be included in rental fees by amusement device suppliers. A potential cost can be reflected in a comparison of two vinyl fabric suppliers’ products, who offer fire retardant and non-fire retardant 18 oz. vinyl polyester fabrics in 100-yard rolls. Supplier 1⁶⁸ offers an NFPA 701-compliant fire-retardant fabric at a unit cost of \$966.95 per 100-yard roll, while Supplier 2⁶⁹ provides a non-fire-retardant fabric at a unit cost of

⁶⁷ <https://dol.ny.gov/industry-inspection-bureau>

⁶⁸ *18 oz Fire Retardant Vinyl Coated Poly Fabric by the Roll*. (2024). Tarps Now. <https://www.tarpsnow.com/18-oz-vinyl-coated-fr-61-x-100-yd.html?srsId=AfmBOorrIA6zswtpbv9yvDKRSTH0rIa0iiBvSPhEms2xolB9xZIO2DIT>

⁶⁹ *Sigman 18 oz Vinyl Coated Polyester Fabric - 61*. (2018). MyTarp.com. <https://www.mytarp.com/products/sigman-18-oz-vinyl-coated-polyester-fabric-61-wide?variant=31746369257508>

\$710.57 per 100-yard roll. This results in a cost increase of approximately 27% to 30% for fire-retardant fabric compared to the non-fire-retardant option.

This cost increase is a part of doing business in the inflatable amusement device industry, and the code amendment is formalizing practices that the industry is and should have been already following. Marginal cost increases may be expected for those suppliers who improperly rented or anchored/installed these devices previously.

Alternatives:

An alternative is to not adopt any provisions addressing inflatable amusement devices. This alternative does not address the safety issues of inflatable amusement devices and does not adequately protect life and property. Currently, how these types of structures are regulated varies between municipalities resulting in inconsistent enforcement. For these reasons, this alternative was rejected.

2024 Multiple Code Books

The following is a summary of proposed changes that affect multiple code books:

Coordinating pool and hot tub provisions with industry standards and specific provisions from ICC's International Swimming Pool and Spa Code

2024 RCNYS: Section R328

2024 BCNYS: Sections 3109

Needs and Benefits:

This code amendment updated the New York specific provisions regarding swimming pools and hot tubs to conform to industry standard as well as the ICC's model codes as necessary. In addition, Executive Law

§378(14), as amended by Chapter 292 of the Laws of 2024, removes the requirement that the latch handle for gates be located within the enclosure at least 40 inches above grade and adds the requirement that the release mechanism standards shall be developed by the Code Council based on internationally recognized standards.

The specific changes include a reduction in fence mesh size to match the requirements set forth in the ICC 2024 International Swimming Pool and Spa Code (ISPSC), clarification of the second-floor window alarms requirement, updated suction outlet protection to align with industry standards, and alignment with the Virginia Graeme Baker Pool and Spa Safety Act (VGBA) and internationally recognized standards.

RCNYS Section R328.2 and BCNYS Section 3109.2 include the addition of definitions for suction fittings and suction outlet. RCNYS Sections R328.3.1 and R328.3.2 and BCNYS Section 3109.1.1 include the most current standards for in-ground and above-ground pool design and construction. This change will ensure that the most current standard is referenced. The current safety vacuum release system requirements (SVRS) predate the comprehensive VGBA, which fully and successfully address all suction entrapment hazards for various pumps, pipe sizes, and flow rates. The current SVRS standards limit certifying tests to two-inch pipes and two specific flow rates, which are outdated and may compromise safety in some pool designs. The proposed amendments to the SVRS align with the VGBA, ISPSC, and the dominant construction and design methodology nationwide. The approach taken in the proposed amendments offers superior safety against entrapment by including federal law requirements accompanied by engineering solutions tailored to specific pool configurations.

The current code allows for standard mesh size chain link fence to be used as an acceptable barrier around pool. The proposed amendments align with the current industry shift to a 1 ¾ inches (44 mm) mesh size to provide even more protection against accessing the pool.

Under the current code, operable windows in the wall of a building which is used as a part of the pool enclosure are required to have a latching device, an alarm, and have restrictions on maximum opening

dimensions. The proposed amendment clarifies that windows with a direct access to the swimming pool need a latching device and have opening restrictions. For example, a window that opens onto a second story deck with a stairway leading to a swimming pool must have a latch and can only open to a maximum of 4 inches.

Windows located on the second floor (or above) that do not open on to an exterior surface that provides access to the ground level are clarified to not be considered to provide direct access (due to the fall hazard that exists as a deterrent).

Pool barrier gate latch release mechanism provisions were amended to conform to the requirement of Executive Law §378(14), as amended by Chapter 292 of the Laws of 2024 that the release mechanism standards be based on internationally recognized standards. The release mechanism provisions were revised to align with the requirements in the ICC 2024 ISPS. This change provides greater flexibility during design of such gates, allowing the use of many commercially available gate latching mechanisms which were previously not permitted under the 2020 Uniform Code based on the Executive Law prior to the above noted amendment.

Cost:

The proposed amendments to the SVRS will not have any cost impact to contractors or homeowners because both SVRS and dual drain engineered anti-entrapment systems are part of the existing standards in pool design and equipment production. Contractors and homeowners will likely see a reduction on costs based on the new language removing a potentially redundant system.

The proposed amendments to the fence mesh size will not have a significant cost impact because the fencing industry produces a chain link fencing that meets the proposed fence mesh size and is readily available. Utilizing cost data from several manufacturers, the smaller mesh size costs, on average, \$0.33 more per square foot of fencing.

The proposed amendments to the gate latch release mechanism provisions will potentially decrease the cost of construction. Many commercially available gate latching mechanisms were previously not allowed

under the 2020 Uniform Code, and depending on project requirements, there may be a reduction in costs by utilizing newly allowed mechanisms and/or eliminating the need for customized mechanisms. Gate latching mechanisms that are currently allowed under the 2020 code are also allowed under the proposed amendments. Therefore, there will be no increase in costs as this change merely expands the allowable mechanism types.

The proposed amendments to provisions for windows in building walls used as barriers for pool enclosures may lower construction costs by allowing some windows to be exempt from latching, alarm provisions, and maximum opening provisions.

Alternatives:

Not adopting the proposed pool and hot tub provisions would fail to modernize pool safety requirements or conform with industry standards of practice, and would also fail to comply with the recent legislative amendments to Executive Law §378(14), as amended by Chapter 292 of the Laws of 2024. For these reasons, this alternative was rejected.

New York State Department of Environmental Conservation (DEC) flood provisions

BCNYS: Sections 202, 1108.7.5, 1612.2, 1612.2.1, 1612.3.1, 1612.3.2, 1612.4

RCNYS: Sections R202, R301.2.4, R306,

EBCNYS Sections 202, 502.3, 1103.3, 1201.4. 1303.1.3

Needs and Benefits:

This code amendment includes recommendations resulting from consultation with the New York State Department of Environmental Conservation (DEC), as required by Executive Law § 378(1-a), as amended by Chapter 19 of the Laws of 2023, enacted by Governor Kathy Hochul on March 3, 2023. Climate change increases risks of flooding from heavy rainfall, more intense storms, and rising sea levels which is likely to increase the proportion of buildings exposed to damp conditions that can lead to mold growth. Mold growth can

grow in just two or three days after a storm or flood on carpets, drywall, paper, furniture, etc. in exposed buildings. Flooding frequently causes short-term displacement; however, communities with limited resources and existing vulnerabilities are more likely to experience long-term displacement. The proposed code amendments are based on DEC's recommendation and in consideration of NYCRR Title 6 Part 490, Projected Sea Level Rise, which was updated in 2024. The recommendations include provisions for 18 inches of sea level rise, extending the current required flood elevation into the floodplain with a 0.2 % annual chance of flooding (referred to as the 500-year floodplain), and other improvements to existing language for buildings built in flood hazard areas.

In both the Residential Code and Building Code, provisions for sea level rise in tidal coastal areas were added that increased the required flood elevation by adding an additional 18 inches in tidal areas over current code requirements, based on recommendations from DEC. This provision is based on the Title 6 Part 490 Projected Sea Level Rise medium sea level rise scenario projections for the 2050s.⁷⁰ Sea level rise increases the required flood elevation in tidal coastal areas that are at risk of increased flooding due to climate change.

Additionally, the definition of flood hazard areas was expanded to include the 500-year floodplain. Base flood elevations continue to be determined using a 100-year flood event, but construction requirements have been expanded to include areas within the 500-year floodplain to provide increased resilience and account for possible effects of sea level rise. Due to the increased flood elevations caused by sea level rise, such flood events are likely to affect larger areas than were previously determined to be at risk. The 500-year flood areas were found to provide a good approximation for this increase in anticipated area of flood effects and provide a well mapped boundary that can be easily applied by code officials during the permitting process. Extending the flood elevation requirements into the 500-year floodplain also creates an equal level of protection between

⁷⁰ 6 NYCRR Part 490 (Sept. 25, 2024), available at <https://dec.ny.gov/sites/default/files/2024-09/part490expressterms.pdf>.

buildings in these areas and buildings in the 100-year floodplain and removes the discrepancy in the level of safety provided to such buildings by the requirements. The 500-year flood is only used to determine the boundaries of the flood hazard areas; the base flood elevation is still determined using a 100-year flood event.

The proposed amendment also contains requirements for building additions in flood hazard areas. Under the proposed amendment, additions are prohibited from creating or extending existing nonconformities in existing buildings to which the addition is being made.

Currently, the Uniform Code provides for a two-foot freeboard requirement. However, this requirement does not specifically address the additional flood hazard that will occur because of climate change. Sea level rise and increasingly heavy precipitation events have been documented and will continue with climate change, resulting in additional flood hazard, including increasingly severe combination flooding, in which heavy precipitation occurs simultaneously with sea level rise-enhanced storm surge.⁷¹ The frequency of extreme precipitation events (events with the top one percent of daily precipitation accumulations) has increased by about 60 percent in the Northeast United States, with trends suggesting an increase in the frequency of the most extreme precipitation events (days with more than 5 inches of precipitation), leading to increased risk of severe flooding.⁷²

Areas on the coastal plain, defined as Long Island, New York City, lands near the southern Hudson River, and small portions of southeastern Westchester County, are at risk from rising sea levels and enhanced coastal flooding.⁷³ Sea levels in coastal New York are rising at rates faster than the global average.⁷⁴ Rising sea level along coastal New York State has increased the magnitude and frequency of coastal floods.⁷⁵ In some

⁷¹ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 12, 15.

⁷² National Climate Assessment <https://nca2023.globalchange.gov/chapter/21/#key-message-1>

⁷³ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 15.

⁷⁴ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 15.

⁷⁵ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 15.

locations, flooding now occurs at times of high astronomical tides, even in the absence of coastal storms.⁷⁶

When coastal storms do occur, they now flood larger areas and feature deeper—and thus more damaging and dangerous—water.⁷⁷

Roughly 90% of New York State’s population lives along lakes, rivers, streams, or the ocean, making many New Yorkers vulnerable to flood impacts.⁷⁸ New York State has lost at least \$26 billion in damages to flooding in the past decade.⁷⁹ The costs of not being prepared for future flood-related events are significant and increasing: one estimate states that not addressing coastal storm and flood-related events will cost the State \$55 billion in the next decade.⁸⁰

In September 2024, DEC amended 6 NYCRR Part 490, Projected Sea Level Rise, using science-based State sea level rise projections.⁸¹ As mandated by Executive Law §378(1-a), DOS consulted with DEC and developed Uniform Code provisions based on medium sea level rise projections. Freeboard is an additional height above the base flood elevation (BFE) to which buildings must be elevated.⁸² Base flood elevation is defined as the elevation to which floodwater is anticipated to rise during the base flood. Freeboard is a factor of safety expressed in feet above a flood level, which is intended to compensate for uncertainties in the determination of flood elevations due to unknown factors, such as wave action, bridge openings, or debris.⁸³ However, this safety factor does not account for the additional flood hazard that will occur due to projected sea level rise, and using the freeboard to account for sea level rise reduces the safety factor available should such

⁷⁶ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 15.

⁷⁷ *New York State Climate Change Projections Methodology Report*, New York State Climate Impacts Assessment, p. 15.

⁷⁸ *Flood Damage in New York State*, https://mitigateny.org/hazards_of_concern/flood.

⁷⁹ *Flood Damage in New York State*, https://mitigateny.org/hazards_of_concern/flood.

⁸⁰ *Flood Damage in New York State*, https://mitigateny.org/hazards_of_concern/flood.

⁸¹ *Projected Sea Level Rise*, 6 NYCRR Part 490, p. 1; *Regulatory Impact Statement Summary*, 6 NYCRR Part 490, p. 2.

⁸² *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 4-1. *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 145.

⁸³ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 4-1; *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 70, 142; *Glossary: Freeboard*, U.S. Federal Emergency Management Agency.

unknown factors occur. If sea level rise is not included in required flood elevation provisions, the factor of safety provided by freeboard will decrease as sea level rise continues.

Additional freeboard can mitigate against risk associated with error or uncertainty in flood risk maps and risk associated with climate change, making building more likely to withstand a particularly severe flood.⁸⁴ Freeboard acts as an indicator of above-minimum flood resistant design.⁸⁵ Freeboard has been included in the International Building Code (IBC) for some IBC structure types since 2000 and for most IBC structure types since 2006.⁸⁶ In 2007, the two-foot freeboard requirement was first introduced in the RCNYS. In the 2017 NYS Uniform Code Supplement, provisions requiring two feet of freeboard were added to the BCNYS, matching the RCNYS provisions. This proposal does not remove freeboard requirements, it merely adds an additional sea level rise elevation requirement for tidal coastal flood hazard areas. The existing required freeboard (two feet) is still required in all flood hazard areas. Tidal coastal flood hazard areas are at higher risk due to sea level rise, so in these areas, an additional sea level rise elevation (18 inches) will be added to the freeboard requirement, for a total required elevation of forty-two inches over the base flood elevation.

The impacts of hurricanes and floods are expected to increase, particularly during the useful life of much existing and most new infrastructure.⁸⁷ Average Annual Losses Avoided (AALA) are a statistical measure of the benefits due to adoption of building codes with flood, hurricane wind, and earthquake provisions.⁸⁸ Average Annual Loss (AAL) is the expected loss per year for a range of hazard events of different probabilities.⁸⁹ It is a key metric in insurance premium models and can be included in life cycle cost analysis and return on investment calculations.⁹⁰ Losses avoided are determined by comparing damages to a building that uses a

⁸⁴ *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 147.

⁸⁵ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 4-3.

⁸⁶ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 4-3.

⁸⁷ *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 26.

⁸⁸ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 2-3.

⁸⁹ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 2-3.

⁹⁰ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 2-3.

hazard-resistant building code to damages that would likely have been caused by the same hazard events prior to that code.⁹¹ In a 2020 study by the U.S. Federal Emergency Management Agency (FEMA), the total AALA for structures constructed using freeboard was approximately \$484 million or about \$1,200 per structure, and New York State had the fourth highest flood AALA, with \$24 million.⁹² Several FEMA studies, in 2006, 2008, 2013, and 2014, have found that adding freeboard is one of the most effective ways to reduce losses in the most hazardous flood zones.⁹³

Although DEC has recommended use of the medium sea level rise projection, its proposed Part 490 update includes high (90th-percentile) projections of 41 to 48 inches by the 2080s and high projections of 60 to 69 inches along the State’s tidal coast by 2100.⁹⁴ Twenty-four inches of freeboard (the current Uniform Code requirement) would rapidly disappear under any scenario even approaching these conditions.

Cost:

Construction costs increase 1.2 to 1.7 percent per foot of additional required elevation.⁹⁵ Costs for increasing the height of open foundations for flood resistance mostly involve the cost of additional material, and generally do not increase labor costs by a significant amount.⁹⁶

Alternatives:

One alternative is to not amend any flood provisions. This alternative does not comply with Executive Law §378(1-a), as amended by Chapter 19 of the Laws of 2023, to require that the Uniform Code address future physical climate risks due to sea level rise, storm surges, and flooding. Sea level rise will cause the existing

⁹¹ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 2-3.

⁹² *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 2-3.

⁹³ *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 146, 154.

⁹⁴ *Projected Sea Level Rise*, 6 NYCRR Part 490, p. 3-4.

⁹⁵ *Building Codes Save: A Nationwide Study*, U.S. Federal Emergency Management Agency November 2020 p. 1-6.

⁹⁶ *Natural Hazard Mitigation Saves*, National Institute of Building Sciences 2019 p. 315.

freeboard requirement to provide less and less of a factor of safety over time, leading to increases in flood damages. For these reasons, this alternative was rejected.

Another alternative is to implement a sea level rise requirement that is higher than 18 inches. During consultation with DEC, it was decided that utilizing the medium sea level rise projections struck the best balance between providing sufficient protection against flood hazards while minimizing the increases in construction cost. Therefore, the alternative of adopting a sea level rise requirement greater than 18 inches was rejected.

A third alternative is to implement a sea level rise requirements that is less than 18 inches. However, during consultation with DEC, it was determined that adopting a sea level rise requirement less than the medium sea level rise projections would be inconsistent with the State Flood Risk Management Guidance, would not provide sufficient protection against flood hazards caused by sea level rise and would be inconsistent with the legislative intent behind the amendment to Executive Law § 378(1-a).

Another alternative involves not extending flood elevation requirements into the 500-year flood areas. However, sea level rise will cause not only higher flood elevations but will increase the size of areas affected by floods. The 500-year flood areas were found to be a reasonable approximation for this increase in anticipated area of flood effects and are a well mapped boundary that can be easily applied by code officials during the permitting process. If the areas required to be elevated are not adjusted to account for sea level rise, communities that fall within the expanded flood area will be at higher risk of flood damage. Moreover, even in inland areas, as described above, the increased frequency of extreme precipitation events has resulted in increased frequency of fluvial flooding. In some areas, such as the City of Ithaca, FEMA remapping has already resulted in significant portions of the former 500-year floodplain being mapped into the 100-year floodplain. In addition, the US Department of Housing and Urban Development (HUD) recently published a Final Rule in the Federal Register revising its floodplain management regulations. The new regulations will require all new

HUD funded development be elevated to the Base Flood Elevation plus 2 feet of freeboard in both the mapped Special Flood Hazard Areas (1% floodplain) and in the areas that would be included in the area created by horizontally extending Base Flood Elevation plus 2 feet. As this trend of increasing flood risk is projected to continue, additional building elevation for new structures in the current 500-year floodplain will reduce the flood risk and future insurance premiums for many new structures built in the 500-year floodplain. For this reason, the alternative of not extending floodplain requirements into the 500-year floodplain was rejected.

A2L refrigerant

2024 RCNYS: Sections M1411.2, M1411.4, M1411.5, M1411.6, M1411.7

2024 FCNYS: Section 608.14, 608.18, Table 608.18.2

2024 MCNYS: Sections 1101.2.1, Table 1103.1, 1104.3.1, 1104.3.2, 1106.4, Table 1106.4.2, 1109.2, 1109.3

Needs and Benefits:

This code amendment is an ICC change that adds language pertaining to the use of A2L refrigerants allowed pursuant to the United States Environmental Protection Agency (EPA)’s programs enacted under the American Innovation and Manufacturing Act (AIM Act, 42 U.S. Code §7675) authorizing the EPA to “regulate the transition to next-generation refrigerants and implement a phasedown of the production and consumption of HFCs over the next 15 years”.⁹⁷ As part of the EPA’s Technology Transitions Program, a final EPA rule (40 CFR Part 84) was implemented to “restrict the use of high global warming potential (GWP) HFC refrigerants in air conditioning and heat pump products and equipment.”⁹⁸

⁹⁷ Cika, J., & Lukasik, T. (2022, January 22). *Code changes on A2L refrigerants*. Building Safety Journal; International Code Council. <https://www.iccsafe.org/building-safety-journal/bsj-technical/code-changes-on-a2l-refrigerants/>

⁹⁸ Cika, J. (2024, August 15). *EPA’s Technology Transitions Program: A2L Refrigerants in the Built Environment - ICC*. Building Safety Journal; International Code Council. <https://www.iccsafe.org/building-safety-journal/bsj-technical/epas-technology-transitions-program-related-to-a2l-refrigerants-in-the-built-environment/>

Provisions expanding the use of A2L refrigerants in refrigeration systems were added to the 2021 IBC, the 2021 IRC, the 2021 IFC, and the 2021 International Mechanical Code (IMC). Use of such refrigerants has increased due to concerns over the global warming potential of traditional refrigerants. However, A2L refrigerants are mildly flammable, so safety provisions specific to these refrigerants are necessary.

The 2022 versions of ASHRAE 34 and ASHRAE 15 in conjunction with the 4th edition of UL 60335-2-40 (2022) define A2L refrigerants as a new UL flammability subclass 2L, for flammability class 2 refrigerants with a lower toxicity and lower burn velocity and include additional safety requirements to accommodate A2L refrigerants.⁹⁹ The proposed amendments to the Uniform Code include updates for ASHRAE 34, ASHRAE 15, and various UL standards, such as UL 60335-2-40 and UL 60335-2-89. These standards include provisions that protect building occupant safety, reduce fire risks, and ultimately provide that such refrigerants can be used in a manner that complies with the intent and requirements of the Uniform Code.

The refrigerant classifications are determined by ASHRAE 34. One of the proposed amendments updates the refrigerant table, Table 1103.1, in the MCNYS, incorporating the new refrigerants added to Standard 34 since the last code cycle.

The requirements in Sections 1104.3.1 and 1104.3.2 of the 2020 MCNYS are based on previous editions of ASHRAE 15. ASHRAE 15 has been updated since the last Uniform Code update. The revision to Section 1104.3.1 is consistent with Section 7.5.2 of ASHRAE 15. ASHRAE 15 lists the refrigerants prohibited whereas the proposed amendment lists the refrigerants required to be used. The language in current Section 1104.3.2 that is removed from the proposed revision to Section 1104.3.2 is addressed in the proposed revision to Section 1104.3.1. The remaining text of proposed revision to Section 1104.3.2 is consistent with the requirements in Section 7.5.3. of ASHRAE 15. Table 1104.3.2 was removed from proposed revision to Section 1104.3.2 to be

⁹⁹ Factsheet. (2022). *ASHRAE's Numbering System Update on New Refrigerants Designations and Safety Classifications*. ASHRAE. https://www.ashrae.org/file%20library/technical%20resources/bookstore/factsheet_ashrae_english_november2022.pdf

consistent with ASHRAE 15. Additionally, the table is no longer necessary with the change to ammonia refrigerant requirements during the last two ICC model code cycles and with the proposed change adding the exceptions to Section 1104.3.1.

Cost:

The proposed amendment to Table 1103.1 will not increase or decrease the cost of construction.

Updating the table of refrigerants that are permitted to be used in systems as an option does not add labor or material costs because the choice of refrigerant is up to the owner and designer.

The proposed amendments to Sections 1104.3.1 and 1104.3.2 will impact construction costs. The updated requirements specify that Group A1 and A2L refrigerants must be used in high-probability systems used for human comfort, which are air conditioning systems where a refrigerant leak is likely to directly enter an occupied area due to its design or component placement. Group A2 and B2 refrigerants are not permitted in those systems, and A3 and B3 refrigerants can only be used with approval.

Equipment costs may increase as manufacturers are redesigning and creating new systems to comply with the EPA rule for residential and light commercial HVAC systems banning the manufacture and import of HVAC products (i.e. window air conditioning units and packaged terminal air conditioning units) and the installation of new HVAC systems (i.e. split system air conditioners and mini-split air conditioners) containing refrigerants with Global Warming Potentials (GWP) greater than 700, starting on January 1, 2025.¹⁰⁰ The commonly used A1 refrigerant, R-410A, has a GWP of 2,088, classifying it as a greenhouse gas under the EPA rule and will be non-compliant in 2025.¹⁰¹ This shift is expected to lead to higher residential and commercial construction costs as supply chains and manufacturers adjust to the new requirement and A2L refrigerant

¹⁰⁰ Cika, J. (2024, August 15). *EPA's Technology Transitions Program: A2L Refrigerants in the Built Environment - ICC*. Building Safety Journal; International Code Council. <https://www.iccsafe.org/building-safety-journal/bsj-technical/epas-technology-transitions-program-related-to-a2l-refrigerants-in-the-built-environment/>

¹⁰¹ Miller, M. (2024, September 2). *Navigating the Government-Mandated Switch to A2L Refrigerants – How it impacts HVAC costs*. Carolina HVAC. <https://www.carolina-hvac.com/post/a2l-refrigerant-switch-hvac-costs-budget-impact>

becomes more readily available. For instance, a 20-pound tank of R-32 refrigerant, a viable A2L replacement for R-410A refrigerant, costs approximately \$400, while a 25-pound tank of R-410A refrigerant has a lower cost of \$280, indicating a 30% price difference.

A2L refrigerants should not affect existing HVAC system maintenance and component replacement costs. However, costs can increase when the systems are replaced at the end of their useful life. Certain types of work classify an existing system as a new HVAC system.¹⁰² According to the EPA rule, increasing the existing system's BTU per hour cooling capacity, installing a new HVAC system for the first time using new or used components, or replacing 75 percent or more of evaporators and 100 percent of the compressor racks, condensers, and connected evaporator loads of an existing system, and charging the systems to full charge all require products and components compatible with A2L refrigerant.¹⁰³

Alternatives:

Refraining from implementing any of the new provisions that expand the use of A2L refrigerants does not comply with the Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2022. Section 24 of that act specified that building codes applicable to commercial or residential buildings may not prohibit the use of substances allowed under the United States Environmental Protection Agency's significant new alternatives policy to implement 42 U.S.C. 7671k (see Section 24 of Chapter 374 of the Laws of 2022).

NYS DOS Division of Building Standards and Codes Technical Bulletin TB-4001-MCNYS clarifies that the Uniform Code has never explicitly prohibited the use of A2L refrigerants, but it has limited their usage

¹⁰² Cika, J. (2024, August 15). *EPA's Technology Transitions Program: A2L Refrigerants in the Built Environment - ICC*. Building Safety Journal; International Code Council. <https://www.iccsafe.org/building-safety-journal/bsj-technical/epas-technology-transitions-program-related-to-a2l-refrigerants-in-the-built-environment/>

¹⁰³ Cika, J. (2024, August 15). *EPA's Technology Transitions Program: A2L Refrigerants in the Built Environment - ICC*. Building Safety Journal; International Code Council. <https://www.iccsafe.org/building-safety-journal/bsj-technical/epas-technology-transitions-program-related-to-a2l-refrigerants-in-the-built-environment/>

based on whether they are listed in Table 1103.1 or if they are deemed acceptable by the code official. The Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2022 allows the use of alternative refrigerants, such as A2L types, provided they have lower Global Warming Potentials (GWPs). Currently, the commonly used A1 refrigerant, R-410A, has a high GWP and is classified as a greenhouse gas under new EPA regulations. Therefore, not adopting the updated provisions to include more A2L refrigerants with lower GWPs would be inconsistent with the intent of the statute. Moreover, without these updates, more efficient heating, refrigeration, and air conditioning systems will remain unavailable to New York State residents and businesses, hindering their ability to meet the state's new efficiency standards.

Additionally, choosing not to adopt these provisions could significantly undermine New York State's climate goals of reducing greenhouse gas emissions by 40% by 2030, posing a serious risk to our environmental commitments. For these reasons, this alternative was rejected.

Mass Timber

2024 BCNYS: Sections 202, Table 504.3, Table 504.4, Table 506.2, 508.4.4.1, 509.4.1.1, Table 601, 602.4-602.4.4.3, 703.6, 703.7, Table 705.5, 718.2.1., 722.7, 1705.5.3, 1705.20, 2304.10.1, 2304.11

2024 FCNYS: Section 3312.1

Needs and Benefits:

This code amendment modifies the provisions governing the use of mass timber to allow for taller wood buildings, based on changes to the 2021 and 2024 I-Codes.

Mass timber buildings are constructed with large pre-manufactured, multilayered, solid wood panels resulting in solid timber floors and walls typically ranging from 5 to 12 inches in thickness.¹⁰⁴ Typical mass timber products include cross-laminated timber (CLT), nail-laminated timber, glued-laminated timber (glulam), and structural composite lumber—all renewable and sustainable engineered wood products.¹⁰⁵ Currently, wood structures are limited to six stories or 85 feet in height.¹⁰⁶ The proposed amendments expand the use of mass timber to allow tall wood buildings up to 18 stories in height.¹⁰⁷

Studies show that building with mass timber can accelerate construction time and improve project safety.¹⁰⁸ The use of prefabricated wood panels makes for efficient construction and renovation and enables end-of-life disassembly and material repurposing, which contributes to waste reduction and to extending the lifetime of carbon stored in these wood products.¹⁰⁹ Developers of a 25 story mass timber building in Milwaukee found that mass timber construction required 90 percent less construction traffic and was 25 percent faster than traditional construction.¹¹⁰ All of these reductions led to reduced emissions associated with the construction process.¹¹¹ Using mass timber was found to reduce the total duration of the project by five months compared to building with conventional materials.¹¹² Assembling roof and wall components on the ground, as is done in mass timber construction, significantly reduces the risk of worker falls.¹¹³

Mass timber is now explicitly defined as encompassing both the large wood building elements historically recognized as Heavy Timber (now Type IV-HT) construction and three new construction types: IV-

¹⁰⁴ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹⁰⁵ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹⁰⁶ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹⁰⁷ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹⁰⁸ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹⁰⁹ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹¹⁰ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹¹¹ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹¹² *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹¹³ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

A, IV-B, and IV-C. Amendments have been made to the tables for “Allowable Height in Feet,” “Allowable Height in Stories,” “Fire-Resistance Rating Requirements for Building Elements,” “Allowable Building Area,” and “Exterior Wall Ratings” to incorporate these new construction types. It is noteworthy that mass timber elements segregating occupancies in Type IV-B and IV-C construction must be safeguarded with gypsum board. Notably, lightweight wood products, including fire-retardant-treated wood, are prohibited for interior framing in these new construction types.¹¹⁴ ICC introduced new sections to address the fire protection of structural connections and to enhance building safety for the new construction types. For instance, while Type IV-HT permits concealed spaces in floors and roof decks, mass timber buildings exceeding 120 feet in height necessitate dual water supplies and fire pumps.¹¹⁵

The proposed amendments include three new/revised definitions in Section 202 of the BCNYS for load-bearing wall, mass timber, and noncombustible protection (for mass timber). The revision to the definition of load-bearing wall is to include mass timber as a category equivalent to that of masonry or concrete. Research by the wood trade associations indicated that mass timber walls can support the minimum 200 pounds per linear foot vertical load requirement. The new term “mass timber” represents the legacy heavy timber (Type IV construction) and the three new construction types. The new term “mass timber” also establishes a single term to represent these various sawn and engineered timber products and differentiate them from traditional wood-frame construction. The new term “noncombustible protection (for mass timber)” was created to address the passive fire protection of mass timber. Mass timber may be fire-resistance rated by itself or through a combination of mass timber fire-resistance plus protection by non-combustible materials as defined in Section 703.5.

¹¹⁴ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

¹¹⁵ *Mass Timber*, American Wood Council, <https://awc.org/issues/mass-timber/>

As mentioned, the proposed amendments include establishing three new construction types: IV-A, IV-B, IV-C. Sections 602.4 through 602.4.4.3 contain the requirements for the new proposed types of construction.

Type IV-A is mass timber construction which is completely protected by noncombustible materials (e.g. gypsum panel products) on all sides. The protection requirements are given in the new Section 722.7 and are required for the floor surface, all wall and ceiling surfaces, inside roof surfaces, undersides of floor surfaces, and shafts. Testing shows that mass timber protected with noncombustible protection, primarily multiple layers of 5/8-inch Type X gypsum board, can survive a complete burnout of a residential fuel load without engaging the mass timber in fire. Type IV-A construction is proposed to have the same fire resistance rating requirements as the existing Type I-A construction, which requires 2-hour and 3-hour structural elements. However, the proposed allowable heights for Type IV-A construction are lower than those for Type I-A construction.¹¹⁶

Type IV-B is mass timber construction which is semi-protected, consisting of some exposed wood surfaces on walls, ceilings, columns and beams. The amount of exposed surface permitted to be installed and the separation between unprotected portions is specified to limit the contribution of the structure in an interior fire. Testing shows that a predictable char layer develops on mass timber in the same fashion as traditional sawn lumber. The allowable unprotected area on the ceiling is proposed to be 100 percent based upon research conducted at the Research Institutes of Sweden (RISE). In Type IV-B construction, concealed spaces, shafts, and other specified areas are required to be fully protected. Type IV-B construction is proposed to have the same base fire resistance requirements as the existing Type I-B construction, which requires 2-hour structural elements. In contrast to Type I-B construction, where Section 403 of the Building Code allows for a reduction

¹¹⁶ ICC Ad Hoc Committee on Tall Wood Buildings Responds to Concerns Raised on Code Proposals Addressing Tall Wood Buildings, August 1, 2018, https://www.iccsafe.org/wp-content/uploads/TWB-Response-to-Concerns-Raised-at-Hearings_8_1_18-Posted.pdf; ICC Ad Hoc Committee on Tall Wood Buildings Responds to Concerns Raised During the Public Comment Period, <https://www.iccsafe.org/wp-content/uploads/TWB-responds-to-public-comment-issues.pdf>.

in the fire-resistance rating of building elements, the fire-resistance rating for building elements in Type IV-B construction remains unchanged in high-rise buildings.¹¹⁷

Type IV-C consists of unprotected mass timber construction. Type IV-C construction requires a two-hour fire-resistance rating, but concealed spaces, shafts, elevator hoistways, and interior exit stairway enclosures are required to be fully protected with noncombustible construction. Type IV-C will have the same height limitations as existing Heavy Timber (HT) construction and only allows an increased number of stories in lower hazard occupancies.

Tables 601 and 602 have been modified to include performance requirements for the three new types of construction. Tables 504.3, 504.4, and 506.2 have been modified to include allowable building heights (in both feet and stories) and allowable building areas for Type IV-A, IV-B, and IV-C construction. Type IV-C construction achieves its fire resistance by performance of the mass timber itself so Tables 504.3 and 504.5 have been modified to greatly reduce permitted height, in both feet and stories.

Section 508.4.4.1 was modified, and Section 509.4.1.1 was added to include requirements for mass timber building elements serving as fire barriers or horizontal assemblies in buildings of Type IV-B or IV-C construction. Section 718.2.1 was amended to include requirements on the use of mass timber building elements for fireblocking. As mentioned, a new Section 722.7 was added to include requirements for the fire resistance rating of mass timber elements, minimum required protection, and gypsum board attachment.

Chapter 17 of the BCNYS was modified to require special inspections of mass timber construction of the structural elements, sealants and adhesives.

Cost:

¹¹⁷ *ICC Ad Hoc Committee on Tall Wood Buildings Responds to Concerns Raised on Code Proposals Addressing Tall Wood Buildings*, August 1, 2018, https://www.iccsafe.org/wp-content/uploads/TWB-Response-to-Concerns-Raised-at-Hearings_8_1_18-Posted.pdf; *ICC Ad Hoc Committee on Tall Wood Buildings Responds to Concerns Raised During the Public Comment Period*, <https://www.iccsafe.org/wp-content/uploads/TWB-responds-to-public-comment-issues.pdf>.

This code amendment provides flexibility for design professionals when selecting the type of construction for a project. Accordingly, this is not a mandatory requirement of the Uniform Code and would pose no additional cost to regulated parties. If a design professional selected this type of construction, the average building cost would vary depending upon the region, application, size, and scope of each project but could result in higher overall costs but be a more cost-effective design choice over the building's lifespan. Oregon State University School of Civil and Construction Engineering researchers found in a recent cost analysis of an 18-story residential building that mass timber construction can be 6.4% more expensive than concrete and steel construction.¹¹⁸ However, the potential for long-term savings can balance those higher costs. Mass timber components can be mass-produced and pre-assembled off-site. Lighter weight components result in lower material transportation costs and allow smaller building foundations that require less concrete. Other labor and material savings can be realized through other up-front costs like reduced crane and heavy equipment rental needs, lower interior finishing costs, and a significant reduction in material waste, contributing to a more sustainable construction process.¹¹⁹

Alternatives:

An alternative is to not adopt any provisions addressing mass timber. This alternative does not address the demands of mass timber proponents and removes a building design option that could be used to contribute towards New York State's climate goals to reduce greenhouse gas emissions by 40% by 2030. Promulgating regulations that promote construction related emission reductions is consistent with the Climate Leadership and Community Protection Act (see L.2019, ch.106, Section 7). Mass timber construction has a lower carbon footprint than traditional steel and concrete and could reduce the emissions associated with building materials

¹¹⁸ Gu, H., Liang, S., & Bergman, R. (2021). *Comparison of Building Construction and Life-Cycle Cost for a High-Rise Mass Timber Building with its Concrete Alternative*. Forest Products Journal, 70(4), 482–492. <https://doi.org/10.13073/FPJ-D-20-00052>

¹¹⁹ Cheng, J. (2022, April 14). *Mass Timber in Construction - Big Buildings, Smaller Carbon Footprint*. Sustainalytics.com; Sustainalytics. <https://www.sustainalytics.com/esg-research/resource/investors-esg-blog/mass-timber-in-construction>

by 13% to 26.5%.¹²⁰ Mass timber also contributes towards carbon sequestration because trees used to make mass timber products retain some of that carbon stored and thereby preventing its release into the atmosphere.¹²¹ For these reasons, this alternative was rejected.

Accessible building feature language updates, including updated reference and coordination with ICCA117.1 to the 2017 version

2024 BCNYS: Sections 1009.2.2, 1013.4, 1023.11, 1108.5.1.1, 1108.5.1.2, 1108.5.2.1, 1108.5.4, 1108.6.2.2.1, 1110.2.2, 1110.18, 1112.6

2024 FCNYS: Sections 1009.2.2, 1013.4, 1023.11

2024 EBCNYS: Section 306.7

2024 PCNYS: Section 410.3.2

Needs and Benefits:

This code amendment removes the “Type B plus” language of the current Uniform Code and replacing it with the 2024 IBC “Type A Unit” language. In doing so, a number of added or revised accessibility provisions are to be updated, including accessibility provisions for electric vehicle chargers, increasing wheelchair area dimension and turning radius, and revised requirements for accessible water closets, grab bars, flush controls, dispensers, roll in showers, and clearances. This code amendment also includes provisions for assisted toileting and bathing facilities.

¹²⁰ Environmental and Energy Study Institute. (2023). *Building Sustainably: Mass Timber (September 2023)*. In *Environmental and Energy Study Institute* (p. 1). https://www.eesi.org/files/FactSheet_Mass_Timber_2023.pdf

¹²¹ Environmental and Energy Study Institute. (2023). *Building Sustainably: Mass Timber (September 2023)*. In *Environmental and Energy Study Institute* (p. 1). https://www.eesi.org/files/FactSheet_Mass_Timber_2023.pdf

The referenced version of the ICC A117.1 was changed from 2009 to 2017. ICC A117.1 is the standard referenced by the 2024 IBC for the design and construction of accessible buildings and facilities. It includes several new and revised technical requirements.

In the past, New York State has adapted the ICC model codes to create what is known as a “Type B plus unit.” These units have enhanced accessibility features and are found in apartment houses, monasteries, and convents where there are four or more dwelling units or sleeping units intended for residential use within a single structure. In such cases, every dwelling and sleeping unit is required to be a “Type B plus unit” under the current Uniform Code. The entrance and other doors must meet the clear width and maneuvering clearances outlined in ICC A117.1, Sections 404.2.2 and 404.2.3. Additionally, at least one toilet and bathing facility within each unit must be constructed according to Section 1003.11 of ANSI A117.1.

The update to the newer version of the ICC model codes brings enhanced maneuverability dimensions, which includes a 67-inch turning diameter (increased from 60-inch), a 30-inch by 52-inch clear floor space (increased from 30 inches by 48 inches), and a 48-inch minimum wide exterior accessible route. These changes would affect all units required to be “Type B plus units” under the current Uniform Code and are likely to be seen as overly onerous on builders, property owners, and the public.

As such, the proposed amendment is to remove the “Type B plus” language in the current Uniform Code and add in the 2024 IBC “Type A Unit” language, which requires Group R-2 occupancies containing more than twenty (20) dwelling or sleeping units to include at least two percent, but not less than one unit, to be Type A units, while increasing the percentage from two percent (2024 IBC language) to 20 percent (proposed 2024 BCNYS language). The proposed amendment also includes adding the 2024 IBC provisions for Type B units - requiring all dwelling and sleeping units intended to be occupied as a residence to be Type B units in buildings where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure.

The proposed amendment also includes revising the new 2024 IBC section that states: “where two or more Type A units are provided, at least 5 percent but not less than one Type A Unit shall include a bathroom with a shower complying with ICC A117.1 for Type A Units” to specifically require a roll-in shower instead of simply a shower that allows for a transfer shower.

The proposed amendments will remove some of the existing “Type B plus” language that has historically been misunderstood and misinterpreted, and simplify the requirements for builders, designers, and building owners. It also provides for enhanced accessibility features over the ICC Model Codes and aligns New York State with other large jurisdictions such as Chicago, which currently requires 20 percent Type A units.

Other provisions of the 2017 ICC A117.1 reference standard are being updated to align with new federal “minimum guidelines for the accessibility of pedestrian facilities in the public right-of-way”¹²² published by the Access Board under the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA).¹²³ It addresses “access to sidewalks and streets, crosswalks, curb ramps, pedestrian signals, on-street parking, and other components of public right-of-way. These guidelines also review shared use paths, which are designed primarily for use by bicyclists and pedestrians for transportation and recreation purposes.”¹²⁴ The guidelines “ensure that facilities used by pedestrians, such as sidewalks and crosswalks, constructed or altered in the public right-of-way by federal, state, and local governments are readily accessible to and usable by pedestrians with disabilities. ...compliance with those enforceable ADA and ABA accessibility standards is mandatory.”¹²⁵

¹²² U.S. Access Board. (2023, August 8). *Preamble to the Final Rule for Pedestrian Facilities in the Public Right-of-Way*. Access-Board.gov. <https://www.access-board.gov/prowag/preamble.html>

¹²³ Architectural and Transportation Barriers Compliance Board. (2023, August 8). *Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way*. Federal Register Vol. 88, No. 151. <https://www.access-board.gov/files/prowag/2023-16149.pdf>

¹²⁴ U.S. Access Board. (n.d.). *U.S. Access Board - About PROWAG*. Wwww.access-Board.gov. Retrieved November 4, 2024, from <https://www.access-board.gov/prowag/>

¹²⁵ U.S. Access Board. (2023, August 8). *Preamble to the Final Rule for Pedestrian Facilities in the Public Right-of-Way*. Access-Board.gov. <https://www.access-board.gov/prowag/preamble.html>

Some other examples of 2017 ICC A117.1 updates are three vehicle-related compliance requirements added new or amended for on-street parking, parking facilities, and electric vehicle charging stations. First, at EV charging stations, a 52-inch x 30-inch clear floor space must be provided, the height of all operable parts must be within a 46” - 48” maximum reach range of the ground or curb depending on approach, and the operation of all operable parts of a station must be operable with one hand and not require tight grasping, pinching, or twisting of the wrist.¹²⁶ An accessible route must be provided from the accessible parking space’s access aisle to the EV station’s clear floor space without being obstructed by the charging cable, and any protection bollards, curbs or wheel stops must be located so they do not obstruct the EV station’s clear floor space or the accessible route. Second, at parking facilities, including surface parking lots and parking garages, accessible routes must be physically separated from vehicular traffic when they pass through those parking facilities, except for those routes crossing drive aisles, or from routes directly connected from accessible parking spaces and passenger loading zones to accessible entrances. Third, new provisions are added for on-street parking to align with the new federal public right-of-way accessibility guidelines (PROWAG). For example, “where the width of the sidewalk or available right-of-way exceeds 14 feet, the “wide sidewalk” provisions that require a 60-inch wide minimum access aisle for the full length of the parking space are to be applied. Having the parking space the width of the vehicle plus the width of the access aisle will allow vehicles to park at the curb or at the parking lane boundary. This allows the driver to park so that the access aisle can serve either the driver’s side or passenger’s side of the vehicle.”¹²⁷

Cost:

¹²⁶ International Code Council. (2017). *Chapter 3 Building Blocks - Section 309 - 2017 ICC A117.1*. Iccsafe.org; International Code Council. https://codes.iccsafe.org/content/icca117-12017/chapter-3-building-blocks#ICCA117.12017_Ch03_Sec309

¹²⁷ International Code Council. (2017a). *2017 Significant Changes To The ICC A117.1 Accessibility Standard*. Iccsafe.org; International Code Council. https://codes.iccsafe.org/content/icca117-12017sc/502-1-502-9-parking-spaces#ICCA117.12017SC_Ch30

The proposed code change aims to remove the confusing existing “Type B Plus” language. Its removal will enhance clarity for designers, builders, and code enforcement officials regarding the application of accessibility, quantity, and distribution requirements for Type A units versus Type B units in Type R-2 apartment houses, monasteries, and convents.

In general, a Type A dwelling unit costs more to construct than a “Type B Plus” dwelling unit due to the higher level of required accessibility features, which require specialized construction and materials, resulting in a higher overall cost. The square footage of Type A units will increase due to ICC ANSI A117.1’s new dimensional requirements, such as the larger turning radius and clear floor space. However, builders and developers may find that overall required building areas are not increased, as they only need to provide 20% Type A units throughout the building, leaving 80% of available dwelling units requiring a Type B-compliant design (not Type B Plus).

The cost differences can be seen when comparing Type A and Type B unit bathroom designs. For a Type A compliant bathroom, 75 square feet is needed to accommodate a fully accessible roll-in shower, toilet, lavatory, and out-swinging door with ICC A117.1 compliant door clearances. On the other hand, a Type B bathroom requires 60 square feet to support a transfer-type shower, toilet, sink with base cabinet, and a 32" door with conventional clearances. According to RS Means 2024 construction cost data, a 1–3 story apartment complex averages \$220 - \$575 per square foot (Gordian, 2024). Based on this data, the Type B bathroom total unit cost ranges from \$8,800 - \$23,000, while the Type A bathroom total unit cost ranges from \$19,800 - \$51,750, resulting in a 44% higher construction cost than a Type B bathroom. The current Uniform Code mandates that all dwelling units must be Type B Plus units, which require larger door clearances and at least one accessible toilet and bathing facility. These requirements result in significantly larger square footage compared to the building areas needed by the ICC model code. However, by eliminating the New York-specific Type B Plus requirements, the additional area requirements for the 20% required Type A units will be balanced

out by the significant reduction in required area for the remaining 80% of units, which are only required to be Type B. Depending on building layout and other factors, the total required building area may decrease when compared to current Uniform Code requirements. Potential cost savings are expected when comparing the 2020 BCNYS Type A versus Type B Plus bathroom requirements with the proposed 2024 BCNYS Type A versus Type B bathroom requirements for a hypothetical 25-unit R-2 apartment building, using the same 2024 RS Means square foot cost data. To facilitate comparison, assume that all dwelling units have one bathroom. The table below summarizes the costs for this scenario:

Basis-of-Design: 25 Unit Type R-2 Apartment Building
Assumptions for calculations: 1 BR - 1 BA Apartment
RS Means 2024 Avg SF Cost: \$ 220 - \$ 575/sf for 1 - 3 story apartment complex

2020 BCNYS Requirements

Dwelling Unit Bathroom Type	Quantity Req'd	x	Area per Unit (sf)	=	Total Area (sf)	x	Average Cost per SF	=	Total Cost	Avg Range
Type A	0	x	75	=	0	x	\$ 220	=	\$ -	MIN
(None for R-2 bldgs w/ 4+ units; all units must be Type B per 1107.6.2.2.2)						x	\$ 575	=	\$ -	MAX
Type B+	25	x	75	=	1875	x	\$ 220	=	\$ 412,500	MIN
(At least 1 bathroom per unit must be constructed like Type A)						x	\$ 575	=	\$ 1,078,125	MAX
2020 Total Required Bathroom SF					=	1875				

2024 Proposed BCNYS Requirements

Dwelling Unit Bathroom Type	Quantity Req'd	x	Area per Unit (sf)	=	Total Area (sf)	x	Average Cost per SF	=	Total Cost	Avg Range
Type A	5	x	75	=	375	x	\$ 220	=	\$ 82,500	MIN
(For bldgs of 20+ units, 20% of total # must be Type A)							\$ 575	=	\$ 215,625	MAX
Type B	20	x	60	=	1200	x	\$ 220	=	\$ 264,000	MIN
(For bldgs w/ 4+ units, all units must be Type B per 1108.6.2.2.2)							\$ 575	=	\$ 690,000	MAX
2024 Total Required Bathroom SF					=	1575				

Net Add'l SF Required	=	-300	x	\$ 220	=	\$ (66,000)	MIN
				\$ 575	=	\$ (172,500)	MAX

2020 Total Avg MIN Cost = \$ 412,500
 2024 Total Avg MIN Cost = \$ 346,500
Difference = \$ (66,000)
 Decrease -19%

2020 Total Avg MAX Cost = \$ 1,078,125
 2024 Total Avg MAX Cost = \$ 905,625
Difference = \$ (172,500)
 Decrease -19%

At electric vehicle (EV) charging stations, we expect that the only additional cost associated with the new accessibility requirements will be the installation of protection bollards to prevent impact damage to the charging units. According to the RS Means 2024 construction cost data for Albany, NY, the average cost for installing two 8” dia. x 4’-0” high steel pipe bollards, which are filled with concrete and painted, is approximately \$1,234. The primary cost impact of the accessibility code amendments for restrooms will come from the increased turning radii, which necessitate larger compartments for accessible stalls. Plastic (HDPE) toilet partitions are priced at \$1,530 for a standard cubicle, with an additional \$162 for an accessible stall, bringing the total estimated cost to \$1,692 per accessible unit.

Alternatives:

One alternative is to maintain the accessibility provisions within the Uniform Code without any amendments. If the 2020 Uniform Code provisions remain unchanged, the new edition of ICC A117.1 will mandate that nearly all units in multi-family housing comply with the newly increased turning radii and doorway width standards. Additionally, not adopting the new edition of the ICC ANSI A117.1 reference standard means that accessibility issues for individuals with disabilities would not be adequately addressed. For instance, the new standard requires 67” turning radii and larger door clearances to accommodate oversized wheelchairs, which are increasingly used by disabled individuals. These dimensional and clearance adjustments also provide the necessary space for caregivers assisting individuals with disabilities during activities such as toileting or changing, particularly where adult changing stations are available. Furthermore, under this alternative, electric vehicle (EV) charging stations would not be required to be accessible, thereby limiting access for disabled owners of electric vehicles. Additionally, Type A dwelling units offer greater accessibility than Type B Plus dwelling units, enhancing the quality of life for residents who need accessible building designs. Not adding requirements for Type A units would reduce the number of residents who could benefit from this improved quality of life. Finally, failing to update A117.1 would prevent compliance with the new

federal public right-of-way accessibility guidelines issued by the U.S. Access Board. These guidelines require that facilities used by pedestrians in the public right-of-way are readily accessible and usable by individuals with disabilities. For these reasons, this alternative was rejected.

Lithium batteries

2024 BCNYS: Sections 304.1, 306.2, 311.2, 903.2.2.2, 903.2.4, 903.2.7.3, 903.2.9, 903.2.9.1, 903.3.1.1.3, 907.2.2.2, 907.2.4.1, 907.2.7.2, 907.2.10.2

2024 FCNYS: Sections 203.10.3, 320, 403.10.6, 903.2.2.2, 903.2.4, 903.2.7.3, 903.2.9, 903.2.9.1, Table 903.2.11.6, 903.3.1.1.3, 907.2.2.2, 907.2.4.1, 907.2.7.2, 907.2.10.2, Table 3203.8

Needs and Benefits:

This code amendment adds collection and storage requirements for lithium batteries. These requirements apply to all types of lithium-ion batteries and lithium metal batteries, including used batteries collected for recycling or disposal and batteries stored at recycling and disposal facilities.

Lithium-ion and lithium metal batteries have been a contributing factor in a growing number of fire incidents for several years.¹²⁸ These batteries are being used in an ever-increasing number of products and applications and can create challenging fire hazards due to thermal runaway.¹²⁹ Lithium-ion and lithium metal batteries pose as a challenging fire hazards for multiple reasons: they are often contained within a metal housing, this makes it difficult for water to contact the batteries to cool the batteries allowing thermal runaway to continue; many lithium-ion technologies are capable of self-supporting fire, without the need for an external oxygen source or they may produce fire when submerged; during the initial stages of thermal runaway the batteries may release toxic and explosive hazardousness gases often leading to deflagration events; the batteries

¹²⁸ *The Science of Fire and Explosion Hazards from Lithium-Ion Batteries*, UL Fire Safety Research Institute, January 2023, p. 3.

¹²⁹ *The Science of Fire and Explosion Hazards from Lithium-Ion Batteries*, UL Fire Safety Research Institute, January 2023, p. 3 & 5.

may contain stored electrical energy that may pose as an additional risk to firefighters; once the batteries are extinguished they have a high propensity to re-ignite requiring additional supervision of the scene for a greatly extended time period; and during a fire or thermal runaway event cells may launch from the device causing the fire to spread rapidly. The proposed amendment includes requirements to regulate the collection and storage of these batteries so as to reduce the probability of a fire event and mitigate adverse impacts on the safety of the facility and the public. In the BCNYS, Group F-1 occupancies used to manufacture lithium-ion or lithium metal batteries, vehicles, and equipment containing lithium-ion or lithium metal batteries were added to the list of occupancies which require automatic sprinkler systems. Testing has shown automatic sprinkler systems to be effective in suppressing fires involving lithium-ion or lithium metal batteries and can mitigate some of the hazards presented by such batteries.¹³⁰

In the 2024 FCNYS, the sprinkler systems section has been enhanced to include requirements for sprinklers in lithium-ion battery storage areas. In the 2020 FCNYS, Table 3206.2 lacks a commodity classification for lithium-ion and lithium metal batteries – this has been remedied by the proposed amendment. In addition to sprinkler requirements, the addition of this classification also allows the code official to regulate lithium-ion battery storage as high-piled storage when the storage height exceeds six feet.

Section 320.1 identifies the threshold quantities for batteries to be regulated by Section 320. Section 320 does not regulate lithium-ion and lithium metal batteries in products, devices, or vehicles; batteries in small retail packaging; or the temporary storage of batteries at manufacturing facilities or in transit. Section 320.3 requires a fire safety plan to be provided in accordance with new Section 403.10.6, which is specific to lithium-ion and lithium metal batteries and contains provisions for addressing thermal runaway.

¹³⁰ *Sprinkler Protection Guidance for Lithium-Ion Based Energy Storage Systems*, NFPA Fire Protection Research Foundation, p. 21.

Requirements for limited indoor battery storage in containers were added to Section 320.4.1. This proposed amendment is intended to provide requirements for containers intended to collect batteries for recycling or disposal. These types of containers can be found in many establishments, including mercantile and other occupancies. The proposed amendment includes limitations for individual containers to not exceed 7.5 cubic feet and for the total storage not to exceed 15 cubic feet. Indoor storage in excess of these values is regulated under Section 320.4.2 and are required to obtain an operating permit per Section 320.2.

Section 320.4.2.6 added provisions which allow the fire code official to waive specific protection requirements based on approval of the procedures used for limiting and verifying that the state of charge (SOC) will not exceed 30 percent. The procedures used to verify the SOC can be periodically checked as part of the operating permit. Lithium-ion batteries not exceeding 30 percent SOC have been shown to be less likely to undergo thermal runaway or fire propagation than fully charged batteries. Limiting the SOC to 30 is recognized by the United States Department of Transportation (DOT) and other transport agencies as providing an additional level of safety and is included in requirements for shipping such batteries by air transport.

Section 320.4.3 was updated to include requirements covering the outdoor storage of lithium-ion or lithium metal batteries. The proposed requirements include criteria for the location of storage in proximity to exposures, storage area size limits, and separation and fire detection requirements.

This amendment adds a new Section 403.10.6 which includes requirements for providing a fire safety plan and an evacuation plan to be prepared and maintained for occupancies involving battery related activities, storage, handling, and use. Emergency action plans and early mitigation are key elements in providing for occupant and facility safety and for reducing the size of an event. Section 403.10.6 identifies a broad range of occupancies, use and activities involving lithium-ion and lithium metal batteries which have potential to cause or contribute to a large fire event due to thermal runaway. Section 403.10.6 does not apply to storage and merchandizing of products containing lithium-ion or lithium metal batteries, or the storage and merchandizing

of small batteries in retail packaging. Additionally, Section 403.10.6 does not apply to personal use vehicle and devices in one- and two-family dwellings and townhouses. Section 403.10.6.1 requires fire safety and evaluation plans to consider mitigation planning for a thermal runaway event involving the lithium-ion and lithium metal batteries. Early mitigation is a key to preventing events and controlling the size of event should one occur.

Cost:

This code change will increase the cost of construction due to the addition of fire protection requirements for lithium-ion and lithium metal battery collection and storage areas.

The requirements for installation of automatic sprinkler systems are one of the major sources of cost increase for this amendment. A survey of fire protection supply companies suggests that automatic sprinkler systems in new commercial construction cost approximately \$1-\$4 per square foot. These costs vary based on the type of building – the cost for low-rise buildings is approximately \$1-\$2 per square foot. These costs may be offset by discounts in insurance costs, as many insurance companies offer lower rates for buildings with automatic sprinkler systems.

Another source of increased costs is provided by the operating permit provisions. Facilities with collection and/or storage of batteries exceeding certain limits will now be required to obtain operating permits, which presents an increased cost to the facility in preparing the permit application. However, depending on the current use(s) of the building, an operating permit requirement may already exist in the current code; therefore, for such facilities there would be no increased cost.

Similarly, new requirements for fire safety plans and the associated technical report detailing fire and explosion risks will cause increased costs. Affected occupancies will face increases in operational costs related

to writing and maintaining the fire safety and evacuation plans and employee training. However, many of these occupancies are already required to maintain fire response plans and provide employee training.

Alternatives:

An alternative is to not adopt any provisions addressing lithium batteries. However, lithium batteries present new and increasing fire safety hazards that are not adequately addressed by the existing codes. As such, this alternative was rejected.

Energy Storage System

2024 BCNYS: Sections 202, Table 414.5.1, 716.2.5.4.1, 716.3.2.1.1.1, 903.2.4, 1604.5.2

2024 RCNYS: Sections R202, R330

2024 FCNYS: Sections 1107, 1207, Table 1105.4

Needs and Benefits:

This code amendment includes provisions recommended by the Energy Storage System (ESS) Inter-Agency Fire Safety Working Group (Fire Safety Working Group). Following a series of fires at three battery ESS locations across New York State in 2023, Governor Kathy Hochul convened the Fire Safety Working Group to address safety concerns around lithium-ion battery ESS.¹³¹ The Fire Safety Working Group consisted of State agency officials from Division of Homeland Security and Emergency Services (DHSES), Office of Fire Prevention and Control (OFPC), New York State Energy Research and Development Authority (NYSERDA), Department of Environmental Conservation (DEC), Department of Public Service (DPS), Department of State

¹³¹ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 2.

(DOS), and nation-leading battery ESS safety industry experts.¹³² The Fire Safety Working Group was formed to investigate recent fires, inspect current installations, identify gaps in codes and industry best practices and develop recommendations for the Code Council proposing revisions and enhancements to the Fire Code.¹³³ In July 2024, the Fire Safety Working Group released its Fire Code Recommendations, which consisted of proposed updates and additions to the Fire Code, as well as additional considerations.¹³⁴ The recommendations from the Fire Safety Working Group include: adopting the 2024 International Fire Code language for ESS, adopting the 2023 version of NFPA 855, and requiring peer review for all ESS installations.

Section 1207 of the IFC, which provides requirements for ESS, was revised and expanded in the 2024 IFC. New and updated provisions include: mobile ESS, fault conditions, hazard mitigation analysis, retrofitting lead-acid and nickel-cadmium batteries, fire suppression systems, and explosion control. Additionally, provisions for residential occupancies were revised and expanded regarding installation locations, fire detection, and special provisions for ESS located in garages, including vehicle impact protection. Many of these new or updated IFC provisions include notes stating they are based on the 2023 version of NFPA 855, which aligns with the workgroup recommendations.¹³⁵

The 2024 IFC references the 2020 version of NFPA 855, which is changed in the proposed amendment to reference the 2023 version of NFPA 855 based on the workgroup recommendations. The 2020 version of NFPA 855, “Standard for the Installation of Stationary Energy Storage Systems,” was initially released in 2019,

¹³² FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 2.

¹³³ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 2.

¹³⁴ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 4.

¹³⁵ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

and the 2023 edition is the first update to this standard since its release. This update provides many beneficial updates, and incorporates changes based on feedback from users of the initial 2020 version. The 2020 FCNYS, like the 2018 IFC, does not reference NFPA 855, since the standard was not available during the 2020 code update process. Inclusion of the 2023 edition of NFPA 855 will provide increased life safety and protection from the hazards presented by ESS systems.

The proposed amendment, as recommended by the workgroup, modifies Section 1207.1.8.1 to require hazard support personnel to respond to all fire (or other hazard) events, and adds a requirement for such personnel to arrive on-site within four hours. Previously, such personnel were dispatched “where required by the fire code official.” This modification ensures that trained personnel will be on site to respond to any potential hazardous developments such as reignition, which is a known hazard for ESS fires.

Other implemented workgroup recommendations include: continuously attended system monitoring for ESS systems exceeding specified thresholds, video surveillance system monitoring for ESS systems exceeding specified thresholds, third party ESS safety inspections, and first-responder training and site-incident plans.

Another workgroup recommendation which is incorporated in the proposed amendment covers peer reviews. Currently, Section 1206.8 of the 2020 FCNYS gives authorities having jurisdiction (AHJs) the discretion to require that battery ESS developers pay for an independent peer review of the developer’s permit application.¹³⁶ However, AHJs rarely utilize this discretion to require a peer review.¹³⁷ The proposed

¹³⁶ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

¹³⁷ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

amendment mandates peer reviews for all battery ESS installations exceeding energy capacity thresholds established for lithium-ion batteries in the FCNYS.¹³⁸

AHJs often lack the resources or expertise to understand and interpret critical battery ESS permitting documents.¹³⁹ This gap in AHJ expertise has led to incomplete or inadequate applications that do not sufficiently meet the requirements of Section 1206 of the 2020 FCNYS.¹⁴⁰ Peer reviews by experts in the field can assist AHJs in their review and understanding of battery ESS permit applications and determining compliance with FCNYS requirements.¹⁴¹

The provisions for ESS in the RCNYS have also been extensively updated, including the requirements for installation locations, maximum energy ratings, fire detection, vehicle impact protection, labeling, and documentation.

Cost:

Peer review costs additional money for battery ESS applicants and based on a loaded rate between \$250/hour and \$350/hour for 30-45 hours, is estimated between \$10,000 and \$18,000 per installation plus \$2,000 in administrative compliance expenses. NYSERDA plans to contract with qualified peer reviewers to provide peer reviews at no cost to those project developers receiving NYSERDA incentives as part of its Energy Storage Program.¹⁴²

¹³⁸ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

¹³⁹ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p.5.

¹⁴⁰ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

¹⁴¹ FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 5.

¹⁴² FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group

Additional workgroup recommendations are included in this proposed amendment and were assessed for possible effects on costs. Specific estimated costs are detailed below for each identified provision.

One requirement specifies that qualified personnel must be available for dispatch within 15 minutes and able to arrive on scene within four hours to provide support to local emergency responders, which is expected to result in an initial cost increase for the owner, agent, or lessee of the ESS system of \$19,000 - \$26,900 per ESS project.¹⁴³ The potential cost includes annual training qualifying such employees as “Fire Mitigation Personnel,” which amounts to 8 to 12 hours per year at a loaded rate of \$250 to \$350/hour plus certificate allowance, and an annual contracting fee between \$15,000 and \$20,000.¹⁴⁴

Extending safety signage requirements beyond the ESS unit itself, to include perimeter fences or security barriers, is estimated to increase costs between \$1,500 to \$3,000 per facility.¹⁴⁵

Staffing and operating a 24/7 network operations center for battery management system data monitoring is estimated to have an initial cost of \$5,000 to \$10,000 and an annual cost of \$7,500 per site.¹⁴⁶

Installation of video surveillance systems for continuous monitoring and post-event analysis purposes is estimated to cost between \$15,000 and \$24,000, which includes the equipment, installation, and initial setup for offsite storage, assuming a storage duration of 72 hours.¹⁴⁷

Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 6.

¹⁴³ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23.

¹⁴⁴ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23.

¹⁴⁵ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23.

¹⁴⁶ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23.

¹⁴⁷ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23.

The requirement for an emergency response plan and annual local first responder training for every ESS installation is estimated to have an initial cost, per project, of \$12,000 to \$15,000 and an annual cost of \$11,900, assuming coordination and training for 8 to 10 hours at a loaded rate of \$250 to \$350/hour.¹⁴⁸

The proposed amendment requires monitoring of fire detection systems by a central station service alarm system to ensure timely, proper notification to the local fire department in the event of a fire alarm involves the design, permitting, procurement, and installation of the necessary equipment to ensure timely and proper notification to the local fire department. However, central station monitoring in accordance with NFPA 72 is already required under the 2020 Uniform Code, so there is no cost increase associated with the implementation of this provision.

Requiring periodic special inspections for ESS installations to ensure thorough safety and compliance is estimated to have an initial cost of \$10,000 to \$13,800, and an annual cost of approximately of \$11,900 per project.¹⁴⁹ This estimate assumes a loaded rate of \$250 to \$350/hour, approximately 4-6 hours for the owner to provide access to the inspector(s), and spending 8-10 hours per site for a two-person team to perform the inspection and complete a standardized checklist/report. This estimate also includes \$2,000 per site in travel expenses.

Alternatives:

An alternative is to not adopt updated provisions addressing ESS. This alternative does not address the fire safety issues associated with ESS that prompted the formation of the Fire Safety Working Group and does

¹⁴⁸ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 24.

¹⁴⁹ Appendix A: FSWR Recommendations That Exceed the 2024 IFC Provisions of the New York State Interagency Fire Safety Working Group Fire Code Recommendations, July 2024 <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group> p. 23-24.

not adequately protect life and property. This alternative also fails to integrate the recommendations from this work group. For these reasons, this alternative was rejected.

Occupiable Roofs

- 2024 BCNYS: Sections 202, 503.1.4, 1004.7, 1006.3, 1009.2.1, 1607.14.2
- 2024 FCNYS: Sections 202, 1004.7, 1006.3, 1009.2.1
- 2024 EBCNYS: Sections 202, 502.1, 804.14.2, 804.5.1.1, Table 804.5.1.1(1), Table 804.5.1.1(2), 902.1, 1011.5.1, 1011.5.2, 1101.7, 1302.1.3

Needs and Benefits:

This code amendment is an ICC change that adds a new definition of occupiable roof to the BCNYS, FCNYS, and the EBCNYS as well as new provisions addressing the egress, accessibility, additions or alterations for occupiable roofs.

The definition of occupiable roof is similar to the existing code definition for occupiable space. However, the new definition of occupiable roof is different in a few key ways. First, the list of uses contained within the definition of occupiable space has been left out. Additionally, the definition of occupiable roof clarifies that access for maintenance of rooftop mechanical equipment or other maintenance does not trigger assembly live load requirements or other provisions related to occupiable roofs. The third difference is the references to light and ventilation in the definition of occupiable space are left out because occupiable roofs are exterior spaces that do not require mechanical ventilation and only require lighting in those portions that constitute the means of egress.

The proper approach to dealing with occupiable roofs from the perspective of building height, number of stories, and installation of occupant notification features has been further clarified for a more consistent

application of the code's intent. Occupiable roofs were added to the existing Section 1009.2.1 of the BCNYS that requires an elevator at accessible floors four or more stories above or below the level of exit discharge.

As rooftops become a desirable amenity space, the FCNYS has added a provision to enhance egress from buildings with occupiable roofs, by requiring elevators for buildings with greater than three stories, two-way communication and door clearance to comply with A117.1.

Requirements for occupiable roof areas created by additions or alterations to comply with the requirements for new construction were added to several sections of the EBCNYS.

Cost:

The expanded means of egress requirements for occupiable roofs will increase construction costs by varying amounts depending on project scope.

For example, under the proposed amendment, an occupiable roof at the fourth story (or higher) of a building requires an elevator as one of the accessible means of egress. Existing Chapter 11 provisions require an elevator for all other building stories for accessible egress. Since this elevator is now required to also serve the roof, the cost of installing such elevator will be increased. Excluding elevator shaft construction, RSMeans 2024 Construction Cost Data estimates the total unit cost of a 4-stop, 2000 lb. capacity electric traction elevator in the Albany, NY region at \$163,264. Dividing that cost by 4, the additional cost of adding one extra stop for the fourth-story occupiable roof on a three-story building would be approximately \$40,816.

Another cost impact is due to code amendments to Tables 1006.3.3 and 1006.3.4 which increase the total occupant load and the minimum number of exits for occupiable roofs based on occupant load. Both can lead to variable additional costs for a project due to code-required adjustments needed for stairway width, door quantities, and sizes.

Alternatives:

An alternative is to not adopt any provisions addressing occupiable roofs. This alternative does not address the fire safety issues associated with occupiable roofs and does not adequately protect life and property. Occupants of such roofs could face insufficient or non-accessible egress, and thus be at higher risk of injury or death due to fire events. For these reasons, this alternative was rejected.

Adult changing stations

2024 BCNYS: Sections 1110.2.1.2, 1110.4

2024 EBCNYS: Section 306.7.15

2024 MCNYS: Section Table 403.3.1.1

Needs and Benefits:

This code amendment includes the locations where adult changing stations are required to be installed and the accessibility provisions for adult changing stations.

An adult changing station contains a changing table large enough to accommodate an adult-sized person that is located in proximity to sanitary facilities, such as lavatories and trash disposal. Without such facilities, severely disabled people who cannot use toilets because of their disability suffer from severe isolation because they and their caregivers must return home to be changed. This lack of access has a profound impact not only on the person with a disability, but on their caregivers who are often their immediate family members. Normal activities outside the home such as shopping, entertainment, and travel must be curtailed because of a lack of safe and sanitary places to change. On occasion, caregivers report they have no option other than to change the adults for whom they care on restroom floors. Aside from the obvious sanitation concerns, which are far from minimal, this practice raises serious questions about how we as a community afford people with significant disabilities a measure of human dignity and protect their right to privacy.

The proposed amendments provide that adult changing stations are required to be installed in assembly and mercantile occupancies that have family or assisted-use toilet or bathing facilities requiring an aggregate of six or more male and female water closets, Group B occupancies providing educational facilities where 12 or more male and female water closets are required to serve classrooms and lecture halls, rooms or spaces used for assembly purposes in Group E occupancies requiring an aggregate of six or more male and female water closets for the room or space, and in highway rest stops and service plazas.

In addition to location requirements, provisions were added requiring adult changing stations to be accessible in all occupancies wherever they are provided. They must also be located in a toilet room that only has one water closet and one lavatory, except when they are located in a family or assisted-use toilet room, and building occupants must have access to the adult changing station(s) at all times that the associated occupancy is occupied.

Cost:

The code proposal will increase the cost of construction. The additional costs include the cost of a changing table and the increase in room size. The costs have been minimized by piggybacking on the existing requirements for family or assisted-use toilet rooms.

In February 2019, the Department of State and the Office of General Services, released the Feasibility Study on Installing Adult Changing Stations for Persons with Disabilities in Public Buildings. This study was carried out under Part KK of Chapter 58 of the Laws of 2018. It concluded that the estimated cost for including an adult changing station in new construction would be approximately \$20,000, and altering an existing family or assisted-use toilet room to add an adult changing station would cost around \$24,000. The study also noted

that adding a new adult changing station bathroom as a building addition may cost around \$400,000, or constructing the same facility as a new space within an existing building's footprint could be \$250,000.¹⁵⁰

Alternatives:

An alternative option is to not adopt any provisions for adult changing stations. However, this option does not improve the lives of individuals with disabilities. It also limits their access to publicly accessible buildings throughout the State. This can make planning activities at and traveling to these buildings challenging if adequate facilities for toileting and bathing are limited or not available. Public bathrooms often provide an undignified and unsanitary experience, where open floor space is the only option for changing. This presents risks to the individuals and their caregivers. Transferring the individual from their wheelchair to the floor can be hazardous to both; in some instances, for healthcare professionals, such transfers can be non-compliant with the NYS Safe Patient Handling Law. For these reasons, this alternative was rejected.

Shipping container construction

2024 BCNYS: Sections 202, 3114

2024 RCNYS: Sections R202, R301.1.4

Needs and Benefits:

This code amendment adds a definition of intermodal shipping container to the BCNYS and the RCNYS, and adds the new Section 3114 to the BCNYS, which includes provisions to regulate the use of shipping containers in building construction.

¹⁵⁰ See *Feasibility Study on Installing Adult Changing Stations for Persons with Disabilities in Public Buildings*, February 2019, prepared by Hyman Hayes Associates.

Constructing houses out of one or more intermodal shipping containers has gained popularity in recent years. This code change was added to the 2024 IBC to ensure consistent application of code requirements and to address minimum safety requirements without duplicating existing code provisions. Provisions referring back to the new section in the BCNYS were also added to the RCNYS.

The amendment adds the new Section 3114, which provides clarity on how to consistently design with, permit, and field inspect shipping containers that are repurposed for building construction. Under the current Uniform Code, use of repurposed intermodal shipping containers requires the building owner or design professional to demonstrate to the satisfaction of the code enforcement official that the proposed design meets code requirements, which may result in inconsistent application of code requirements between municipalities and requires additional design work.

A new definition of intermodal shipping containers is being proposed to separate the container from other sections which refer to, but intentionally do not define, shipping containers. Additionally, a new definition is proposed so that the shipping container provisions can be adequately enforced, and the definition of shipping container is not confused with the other multiple variety of definitions of containers currently in the market. In addition to design and construction provisions, Section 3114.1 also contains a list of exceptions to prevent application of other code sections which could be interpreted as applying to intermodal shipping containers under other applications, such as temporary storage, relocatable buildings, energy storage facilities, and listed equipment. Section 3114.2 also outlines the additional information regarding material requirements that must be included on the construction documents.

The proposed provisions of Section 3114.3 focus on the characteristics of the intermodal shipping container prior to it being repurposed. Section 3114.3 requires verification of the container's construction, condition and structural integrity to assist the structural engineer in evaluating the ability of the shipping

container to resist structural design loads. Section 3114.3 requires inspection by an approved agency and verification of the data plate found on the intermodal shipping container.

Sections 3144.4 through 3114.6 provide references to other sections concerning foundations, decay and termite control, crawlspace ventilation, roof assemblies, interior finishes, and joints or intersections. Section 3114.7 addresses interstitial spaces that may be created when multiple intermodal shipping containers are connected or stacked and ensures that concealed spaces between the containers are protected to prevent fire and hot gasses from passing between containers.

The proposed amendments include structural provisions unique to intermodal shipping containers and which do not duplicate existing structural requirements. These structural provisions, included in Section 3114.8, are divided into three categories: 1) general characteristics for all containers; 2) engineered structural design; and 3) simplified method for single-unit stand-alone container. Provisions include: securing containers to foundations or other structures, stacking containers, and welded connections. Section 3118.4 contains the structural provisions on the engineered structural design. The detailed engineered approach represents the general engineering practice allowed for all other types of building constructions. Section 3114.8.5 contains provisions which provide a simplified design and construction process allowed to be used for some structures.

Cost:

Under the current code, use of intermodal shipping containers in building construction requires the owner or design professional to demonstrate to the satisfaction of the code enforcement official that the proposed design meets the codes requirements without specific provisions, which can be quite costly. This process typically requires detailed design analysis and construction information to illustrate how the design satisfies the Uniform Code, which in some cases only provides prescriptive requirements. The proposed section provides a few new prescriptive requirements for informational data plates and shear walls, as well as several references to existing prescriptive code sections. Since prescriptive requirements are generally much cheaper

than performing engineering analyses, these changes present the potential for significant decreases in construction cost. This code amendment will decrease the cost of construction.

The requirement for installation of a data plate will not cause a significant cost increase, as all information to be included on the plate would likely be required to be included in the permit submission under the current code. The prescriptive shear wall provisions, which allow use of a table to determine allowable shear stresses on the shipping container, will likely decrease the cost of construction, as a detailed engineering analysis for shear will no longer be necessary.

The references to other prescriptive code sections will also decrease the cost of construction, as this new section allows application of some existing Uniform Code provisions. The design considerations addressed by these prescriptive requirements would, under the current code, require detailed engineering analyses.

Alternatives:

One alternative is to not adopt any provisions addressing the use of shipping containers in building construction. However, use of intermodal shipping containers in building construction is already being done in New York State under the alternative means and methods process. This alternative does not address the demands of shipping container proponents, nor does it afford regulatory compliance tools to municipalities that choose to respond to those demands. Additionally, use of the alternative means and methods process may result in uneven enforcement throughout the state, which is contrary to the stated objective of the legislation establishing the Uniform Code. For these reasons, this alternative was rejected.

4. COST

- a. COST TO REGULATED PARTIES FOR THE IMPLEMENTATION OF, AND CONTINUING COMPLIANCE, WITH THE PROPOSED RULE

The new provisions of the Uniform Code will alter building and development costs, reducing some while increasing others. Although costs will vary based on the specifics of each construction or modification project, the Department of State does not expect significant differences from the costs associated with the current code. This rule introduces performance-based regulatory requirements, offering regulated parties more options to protect occupants and users of buildings while also addressing programmatic space needs in the most cost-effective manner.

Item #3 (Needs and Benefits General) above elaborates on the costs linked to the significant changes in the existing Uniform Code. For an overall summary of the potential costs related to New York's code updates, reference to two cost-impact studies conducted by the State of Florida and the National Association of Home Builders are discussed below.

The 2023 Florida Building Code is based on the 2021 I-Codes and utilized RS Means 2024 cost data specifically for the densely populated Orlando region. The 2020 New York Uniform Code is derived from the 2018 I-Codes. Therefore, it can generally be extrapolated to assume that New York's costs to go from a 2018 ICC based code to a 2024 ICC based could be roughly double the percentages identified in Florida's report, without accounting for compounding percentages. Based on available data, the cost impact of the 2024 ICC code changes is estimated to range from approximately 1.68% for a small hotel to about 0.20% for a one-story residential building. The average cost increase for commercial and institutional buildings may be around 0.90%, while residential buildings may experience an average cost increase of approximately 0.26%.

Item	Building Type	Estimated 2024 Cost under 2020 NYS Uniform Code ^a	Estimated 2024 Cost Under 2024 I-Codes	Anticipated Cost Change ^b
1	Small Office	\$ 14,640,696	\$ 14,754,893	0.78%
2	Retail Spaces	\$ 28,543,941	\$ 28,606,738	0.22%
3	Primary School	\$ 13,406,124	\$ 13,478,517	0.54%
4	Small Hotel	\$ 11,627,667	\$ 11,823,012	1.68%
5	Mid-Rise Apartment	\$ 65,296,987	\$ 66,119,729	1.26%
6	1-Story Residence	\$ 435,506	\$ 436,377	0.20%
7	2-story Residence	\$ 639,780	\$ 641,827	0.32%
Average Net % Change in Cost Estimate (comm./inst. bldgs.):				0.90%
Average Net % Change in Cost Estimate (residential):				0.26%

Footnotes:

a. Estimated costs from "Table 1. Summary I-Codes and NEC Changes Cost Impact Comparison" in *Issa, R. R., Wenniger, K., & Chyz, J. (2024). Evaluation of the Cost Impact of 2024 ICC Prescriptive Code Changes. Center for Advanced Construction Information Modeling (CACIM) Rinker School of Construction Management. https://www.floridabuilding.org/fbc/commission/FBC_0624-B/Final_Report_Reduced.pdf*

b. Percentages based on data from "Table 1. Summary I-Codes and NEC Changes Cost Impact Comparison" in *Issa, R. R., Wenniger, K., & Chyz, J. (2024). Evaluation of the Cost Impact of 2024 ICC Prescriptive Code Changes. Center for Advanced Construction Information Modeling (CACIM) Rinker School of Construction Management. https://www.floridabuilding.org/fbc/commission/FBC_0624-B/Final_Report_Reduced.pdf*

The National Association of Home Builders (NAHB) evaluated the changes in the 2024 IRC that impact construction costs for residential buildings. They quantified the additional costs associated with constructing a single-family, detached house that complies with the 2024 IRC, using the 2021 IRC as a baseline. The NAHB study estimated these costs for houses located in Climate Zones 1-8. Below are tables from that report, with New York's climate zones highlighted. The following tables are extracted for reference from the 2024 IRC Code Changes estimated costs report prepared for the National Association of Home Builders.¹⁵¹

¹⁵¹ Home Innovation Research Labs. (2024). *Estimated Costs of the 2024 IRC Code Changes, prepared For National Association of Home Builders*. In 2024 I-Codes Adoption Kit (pp. 3–5). National Association of Home Builders. <https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/estimated-costs-of-2024-irc-changes.pdf?rev=ea36f1c3d5ab4c47b04f5c5b233738e1&hash=2117BED78F03126767B463A5399C0F56>

Table 2. Estimated Incremental Cost of Selected 2024 IRC Changes attributed to the Reference Houses

		Selected Cities	Miami, Dallas		LA, Seattle, New York		Chicago, Helena		Duluth, Fairbanks	
		Climate Zone	1 & 2		3 & 4		5 & 6		7 & 8	
		Reference House	1 & 2		1, 2, 3, & 4		3 & 4		3 & 4	
		Cost Range								
Ref #	Description of Change	2024 IRC Section	High	Low	High	Low	High	Low	High	Low
R-10 (RB173)	Adds requirements for framing at an open floor edge to support a guard assembly & resist rotation.	R502.11	\$459	\$0	\$459	\$0	\$156	\$0	\$156	\$0
R-11 (RB175)	Allows a 6-mil polyethylene vapor retarder under a slab-on-ground floors instead of a 10-mil vapor retarder conforming to ASTM E1745 Class A reqs.	R506.3.3	(\$472)	(\$951)	(\$472)	(\$957)	(\$472)	(\$957)	(\$472)	(\$957)
R-20 (S241.2)	Modifies the water-resistive barrier requirements for stucco in dry climates	R703.7.3	\$0	(\$1,203)	\$0	(\$1,270)	\$0	(\$1,270)	\$0	(\$1,270)
Total			(\$13)	(\$2,154)	(\$13)	(\$2,227)	(\$316)	(\$2,227)	(\$316)	(\$2,227)

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¹⁵² Home Innovation Research Labs. (2024). *Estimated Costs of the 2024 IRC Code Changes, prepared For National Association of Home Builders*. In 2024 I-Codes Adoption Kit (pp. 3–5). National Association of Home Builders. <https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/estimated-costs-of-2024-irc-changes.pdf?rev=ea36f1c3d5ab4c47b04f5c5b233738e1&hash=2117BED78F03126767B463A5399C0F56>

Table 3. Estimated Incremental Cost of Selected 2024 IRC Changes not attributed to the Reference Houses

		Selected Cities	Miami, Dallas		LA, Seattle, New York		Chicago, Helena		Duluth, Fairbanks	
		Climate Zone	1 & 2		3 & 4		5 & 6		7 & 8	
		Reference House	1 & 2		1, 2, 3, & 4		3 & 4		3 & 4	
			Cost Range							
Ref #	Description of Change	2024 IRC Section	High	Low	High	Low	High	Low	High	Low
R-1 (ADM 13.2)	Reorganizes and expands the duties and powers of the Building Official.	R104	\$597	\$74	\$597	\$74	\$597	\$74	\$597	\$74
R-2 (RB7)	Reorganizes and updates the appendix for existing buildings; a few items are substantive.	Appendix BO	\$1,304	(\$1,332)	\$1,304	(\$1,720)	\$875	(\$1,720)	\$875	(\$1,720)
R-3 (RB44)	Modifies the table for allowable deflection under live load to exclude guards & handrails.	Table R301.7	\$0	(\$402)	\$0	(\$402)	\$0	(\$402)	\$0	(\$402)
R-4 (RB45)	Requires splices in floor, ceiling, or roof framing members not occurring over a bearing point to be designed by a registered design professional.	R502.3, R802.4.1, R802.5	\$804	\$0	\$891	\$0	\$891	\$0	\$891	\$0

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¹⁵³ Home Innovation Research Labs. (2024). *Estimated Costs of the 2024 IRC Code Changes, prepared For National Association of Home Builders*. In 2024 I-Codes Adoption Kit (pp. 3–5). National Association of Home Builders. <https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/estimated-costs-of-2024-irc-changes.pdf?rev=ea36f1c3d5ab4c47b04f5c5b233738e1&hash=2117BED78F03126767B463A5399C0F56>

R-5 (RB108)	Provides an exception that exterior stairways to grade with three or fewer risers may have a 36" wide landing provided the stairway is not serving the required egress door.	R318.7.6	\$0	(\$798)	\$0	(\$798)	\$0	(\$798)	\$0	(\$798)
R-6 (RB149)	Requires markings where BIPV systems create hidden electrical hazards.	R329.6.4	\$246	\$190	\$246	\$190	\$246	\$190	\$246	\$190
R-9 (RB165)	Adds a new column with the USDA Textural Soil Classification and indicates which soil types are unsuitable for backfill.	R401.4.1	\$0	(\$946)	\$0	(\$946)	\$0	(\$946)	\$0	(\$946)
R-12 (RB190)	Adds prescriptive requirements for deck ledger flashing and requires the water-resistant barrier to run behind the ledger.	R507.2.4, R507.9, R703.2, R703.4	\$36	\$28	\$36	\$28	\$36	\$28	\$36	\$28
R-13 (RB226)	Provides an additional method to support masonry veneer at a roof-wall intersection.	R703.8.2.2	\$0	(\$328)	\$0	(\$328)	\$0	\$0	\$0	\$0
R-15 (RM13)	Adds a compliance option for location of exhaust openings above windows and doors.	M1504.3	\$0	(\$262)	\$0	(\$262)	\$0	(\$262)	\$0	(\$262)
R-16 (RM18)	Allows taking return air for HVAC systems from bathrooms	M1602.2	\$435	\$198	\$435	\$198	\$435	\$198	\$435	\$198
R-17 (RM19)	Allows taking return air for HVAC systems from closets	M1602.2	\$1,843	\$0	\$1,843	\$0	\$1,843	\$0	\$1,843	\$0
R-18 (RM20)	Allows taking return air for HVAC systems from mechanical rooms.	M1602.2	\$0	\$0	\$244	\$0	\$244	\$0	\$244	\$0
R-19 (S240.2)	Modifies the water-resistant barrier requirements for stucco to apply to all exterior sheathing.	R703.7.3	\$684	\$369	\$750	\$369	\$750	\$394	\$750	\$394

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b. COST TO THE AGENCY, THE STATE, AND LOCAL GOVERNMENTS FOR THE IMPLEMENTATION OF, AND CONTINUED ADMINISTRATION OF THE RULE

¹⁵⁴ Home Innovation Research Labs. (2024). *Estimated Costs of the 2024 IRC Code Changes*, prepared For National Association of Home Builders. In 2024 I-Codes Adoption Kit (pp. 3–5). National Association of Home Builders. <https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/estimated-costs-of-2024-irc-changes.pdf?rev=ea36f1c3d5ab4c47b04f5c5b233738e1&hash=2117BED78F03126767B463A5399C0F56>

The Department of State's Division of Building Standards and Codes ("DBSC") will provide training on the new provisions of the Uniform Code for all local government code enforcement personnel, registered design professionals, and other interested parties. Offering such training is part of the DBSC's core mission, and the DOS anticipates that DBSC will be able to provide such training using its existing staff and facilities, at no significant additional cost to the agency. However, DOS, in consultation with NYSERDA, intends to retain a consultant to assist with the development of the advanced in-service training for this code update.

The Department of State, State agencies that administer and enforce the Uniform Code, State agencies that own or construct buildings, and local governments that administer and enforce the Uniform Code will be required to obtain copies of the new code books. It is anticipated that the set of code books will cost between \$971 and \$1,141.¹⁵⁵ However, the Department of State will provide either one (1) electronic copy of the set of code books or one (1) hard copy of the set of code books for each local government administering and enforcing the Uniform Code. Smaller agencies and local governments typically require only one set of code books. Larger local governments may require multiple sets. Approximately 4,000 code enforcement officials in approximately 1,600 municipalities will be affected by a new version of the Uniform Code.

Local governments, counties, and State agencies that construct commercial buildings and residential buildings for their own use will be required to comply with the Uniform Code, as amended by this proposed rule. When a local government, county, or State agency constructs a commercial building or a residential building for its own use, it will be a regulated party, and it will be subject to the same costs of implementation and continuing compliance as private parties, as discussed in Part 4(a) of this Regulatory Impact Statement.

¹⁵⁵ The cost is only for the code books and a range is provided depending upon whether electronic copies versus hard-copy prints are purchased. Note there would likely be additional costs for the reference standards that are cited within the code books.

Any additional costs borne by local government authorities having jurisdiction for increased plan review or inspections are generally passed on to the general public in the form of marginal increases in permitting and inspection fees.

Further information concerning costs and savings of the most significant of the new provisions of the Uniform Code are discussed within Item #3 (Needs and Benefits General) above.

5. LOCAL GOVERNMENT MANDATES

This rule making will impose some programs, services, duties, and responsibilities upon counties, cities, towns, villages, school districts, fire districts, and other special districts. When any of the aforementioned governmental entities undertake the construction of a building or structure, the construction process is subject to the provisions of the proposed rule to the same extent that the construction of a private building or structure would be regulated.

Pursuant to Executive Law §381, cities, towns, and villages are responsible for administering and enforcing the Uniform Code, except in limited specific circumstances. Consequently, local government personnel will require training in the details of this rule. However, the Department of State's Division of Building Standards and Codes has funding available to provide for training local government code enforcement officials. This training will provide knowledge to enable local government to enforce this regulation.

6. PAPERWORK

This rule will impose minimal additional reporting or record keeping requirements. The additional reporting or record keeping requirements include operating permits for inflatable amusement devices and lithium-ion battery storage; a fire safety plan and an evacuation plan for occupancies involving battery related activities and storage, handling, and use; and an emergency response plan for ESS installations. Local

governments should already have a system in place for administering and enforcing the use of operating permits in accordance with the local government's 19 NYCRR Part 1203-compliant code enforcement program. Additionally local government should also already have a system in place for maintaining property files including fire safety, evacuation, and emergency response plans.

7. DUPLICATION

The Uniform Code provides standards for the construction and maintenance of buildings and structures and for the protection of buildings and structures and their occupants from the hazards of fire. The federal government does not impose comprehensive requirements for these matters. The federal government has addressed the topic of accessible and usable facilities for persons with disabilities through adoption of the Americans with Disabilities Act (ADA) and the Fair Housing Act. Although the existence of federal and State standards may raise issues of overlap or conflict, no such overlap or conflict exists with this proposed rule.

Several State agencies have promulgated regulations which impose requirements upon buildings or structures that house activities licensed or regulated by the particular agency. Although such regulations may affect the construction and/or maintenance of particular buildings or structures, they are not a comprehensive building and fire prevention code like the Uniform Code. Such regulations may impose an additional layer of regulation upon the construction, maintenance, or use of certain categories of buildings. These other regulations, however, are focused upon activities or occupants regulated or protected by the particular State agency and have been promulgated pursuant to statutory authority other than Article 18 of the Executive Law. To the extent that any other State agency regulation conflicts with provisions of the Uniform Code, such other regulation is superseded by the code. *See* Executive Law §383(1).

The provisions set forth in 19 NYCRR Subpart 1229-2, as required by Executive Law §378(19), are included for consistency with the amendments to the Energy Code set forth in the proposed rule making to

amend 19 NYCRR Part 1240, as required by Energy Law §11-104(6)-(8). Please see the Regulatory Impact Statement for the Notice of Proposed Rule Making to amend 19 NYCRR Part 1240 for further detailed information.

8. ALTERNATIVES

It is the policy of the DOS to modernize and amend the Uniform Code, so as to maintain consistency with the national model codes, to keep building practices in New York State consistent with practice nationally, and to incorporate new technical developments in a timely manner. Consequently, the alternative of maintaining existing provisions of the Uniform Code was rejected.

Beginning in March 2022 and continuing through July 2024, the Code Council received summaries of the notable changes in the 2021 and 2024 ICC Model Codes. Staff indicated that a Notice of Rule in Development (NRD), which is the first step in the code adoption process, would summarize the code changes and highlight modifications, including changes from the ICC code development process, legislative directives, and solicit public comments. This was done to ensure that the new provisions of the Uniform Code would remain appropriate and applicable to continually developing design and construction issues and needs in New York State. Additionally, as required under Public Officers Law §103(c), the public was able to view and/or participate in these meetings.

Proposed New York State modifications were posted on the Department of State website for public inspection through a Notice of Rule in Development in July 2024. In addition, the Department of State maintains a list of over 10,000 interested parties that have signed up for e-bulletins regarding code issues, and the Notice of Rule in Development announcement was distributed via the *Building New York* e-bulletin in July 2024. The Department of State accepted comments on the Notice of Rule in Development through September 24, 2024.

Some other alternatives were considered but ultimately not included in this code update. Those alternatives include but are not limited to including mobile fueling and mobile marine craft fueling provisions and aligning definitions such as the definition of agricultural building in 19 NYCRR Subpart 1229-2 with the definition of agricultural building provided in the Uniform Code. Ultimately these provisions alternatives were not implemented due to life safety concerns for a widespread fueling of gasoline from non-fixed equipment, and a need for the definitions with the supporting regulations to have a separate and distinct meaning in order to align with the intent of the law. The Department also considered the alternative of not including code provisions that coordinate with various agency laws and regulations, such as the Public Health Law, Education Law, and Real Property Law for related construction, inspection, and emergency response planning; however, this was rejected because this would create conflicts with other applicable laws and lack of uniformity with enforcement. The Department received comments requesting zoning provisions, such as setback requirements and location restrictions, for Energy Storage Systems (ESS) be provided for in the Uniform Code. Such zoning provisions were not considered because they are outside the scope of the Uniform Code. The Department received comments requesting to expand the conditions of the open burning prohibition under Section 307.1.1 of the Fire Code to include when its smoke, odor, or emissions affect neighboring property. Such expansion of the open burning prohibition based on Section 19 of the New York State Constitution is outside the scope of the Uniform Code and would be covered by the air emissions and odor nuisance regulatory provisions of the DEC and local laws.

Public hearings will be held in accordance with the provisions of the State Administrative Procedure Act. A draft of the proposed code will also be available on the Department of State's website and an e-bulletin will be sent announcing that fact.

9. FEDERAL STANDARDS

The Uniform Code provides standards for the construction and maintenance of buildings and structures and for the protection of buildings and structures and their occupants from the hazards of fire. The federal government does not impose comprehensive requirements for these matters. The federal government has addressed the topic of accessible and usable facilities for persons with disabilities through adoption of the Americans with Disabilities Act (ADA) and the Fair Housing Act. Although the existence of federal and State standards may raise issues of overlap or conflict, no such overlap or conflict exists with this proposed rule.

With respect to the proposed provisions set forth in 19 NYCRR Subpart 1229-2 relating to the prohibition of fossil-fuel equipment and building systems in certain buildings, there is pending litigation where plaintiffs assert federal preemption relating to the use of energy, such as gas, by covered appliance and equipment under the Energy Policy and Conservation Act (EPCA, 42 U.S.C. §§6201-6422). However, the provisions set forth in 19 NYCRR Subpart 1229-2, as required by Executive Law §378(19), are included for consistency with the amendments to the Energy Code set forth in the proposed rule making to amend 19 NYCRR Part 1240, as required by Energy Law §11-104(6)-(8). Please see the Regulatory Impact Statement for the Notice of Proposed Rule Making to amend 19 NYCRR Part 1240 for further detailed information.

10. COMPLIANCE SCHEDULE

The target date for publishing a notice of adoption for this rule making is 2025, with an effective date no later than December 31, 2025. These amendments will take effect at least 90 days after the Notice of Adoption is published in the State Register.

Upon filing the Notice of Adoption for the rule making, a transition period will commence. During this period, regulated parties will have the option of submitting building permit applications in compliance with either current code provisions or the newly adopted provisions. Transition periods are authorized by Executive Law §378(20), which provides that “(a) . . . [N]o change to the building code shall become effective until at

least ninety days after the date on which notice of such change has been published in the state register. . . .” and Subdivision 20 further states that “(b) . . . [T]he council may provide that, in the period during which changes to the code have been adopted but are not yet effective . . . a person shall have the option of complying with either the provisions of the code as changed or with the code provisions as they were set forth immediately prior to the change.”

The magnitude of the proposal to adopt new provisions for the Uniform Code makes it necessary that the Code Council establish a plan for transition to the new provisions. This transition provides flexibility for large construction projects that are in the planning and development stages prior to adoption of the new code provisions. However, the option of compliance with either the “old” Uniform Code or the “new” Uniform Code would not allow persons to mix the application of current and proposed code provisions. The new code provisions will take effect fully at the end of the transition period. A delay of the effective date of the new Uniform Code provisions for a specified time after their adoption, and the option of compliance with either the existing or the proposed code during that period ensure that regulated parties will be able to achieve compliance with the rule on the date that it becomes effective.